AMERICAN AGRICULTURIST

FOR THE

Farm, Garden, and Household.

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON.

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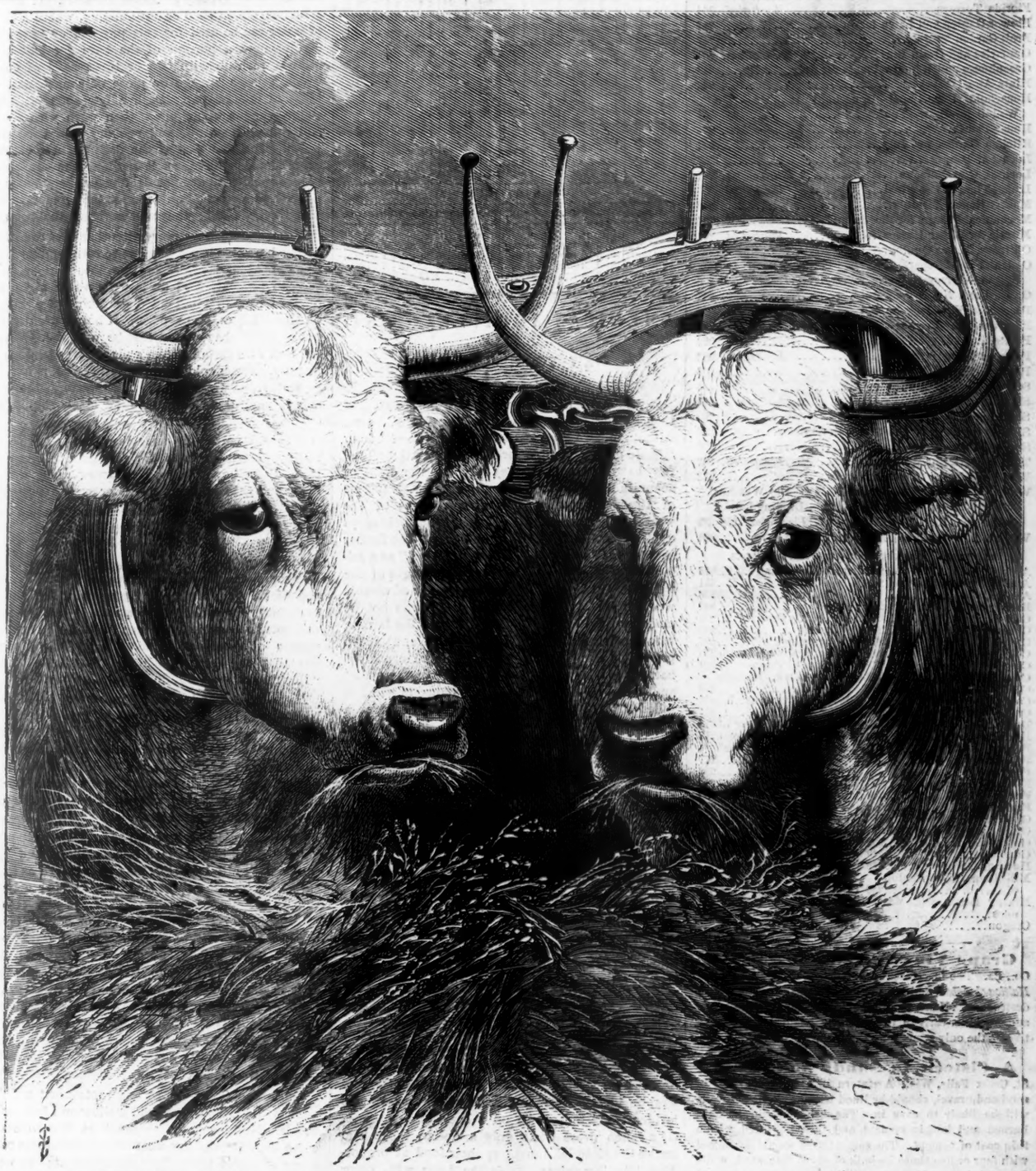

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Grape Vine Insect.—"G. F.," Lehigh Co., Pa. The insect sent is the Grape Vine Flea Beetle, *Haltica chalybea*, and not a fly at all. It is sometimes very destructive. Hand picking, or shaking from the vines and crushing, early in the morning, when they are inactive, is the only remedy we know of.

A Cistern in Sandy Soil.—"J. L.," St. Croix Falls, Wis. A cistern in a soil consisting of sand and gravel, should be lined with brick, or the walls will be likely to cave in. The brick should be hard burned and laid in cement, and then plastered with a thin coat of cement. The cement used should be mixed with four or five times its bulk of sharp fine sand, while dry, and then with water, until it is thin enough to spread well; mix with water in small quantities, as it is needed.

Calendar for July.

Day of Month.	Day of Week.	Boston, N. England, N. York State, Michigan, Wisconsin, Iowa, and Oregon. Sun rises.	Sun sets.	Mo'n rises.	N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois. Sun rises.	Sun sets.	Mo'n rises.	Washington, Maryland, Virginia, Kentucky, Missouri, and California. Sun rises.	Sun sets.	Mo'n rises.
		H. M	H. M	H. M.	H. M	H. M	H. M.	H. M	H. M	H. M.
1	T	4 25	7 40	2 22	4 31	7 34	2 28	4 37	7 29	2 35
2	F	4 26	7 40	3 18	4 32	7 34	3 25	4 37	7 29	3 33
3	S	4 27	7 40	sets	4 33	7 31	sets	4 38	7 29	sets
4	S	4 27	7 39	9 23	4 33	7 33	9 18	4 38	7 28	9 12
5	M	4 28	7 39	9 56	4 34	7 33	9 52	4 39	7 28	9 48
6	T	4 29	7 39	10 23	4 35	7 33	10 20	4 40	7 28	10 17
7	W	4 29	7 39	10 46	4 35	7 33	10 45	4 40	7 28	10 43
8	T	4 30	7 38	11 5	4 36	7 32	11 5	4 41	7 27	11 5
9	F	4 31	7 38	11 23	4 37	7 32	11 25	4 42	7 27	11 26
10	S	4 32	7 38	11 44	4 37	7 32	11 47	4 42	7 27	11 49
11	S	4 33	7 37	morn	4 38	7 31	morn	4 43	7 26	morn
12	M	4 33	7 37	0 4	4 39	7 31	0 8	4 44	7 26	0 12
13	T	4 34	7 36	0 28	4 40	7 30	0 33	4 45	7 25	0 38
14	W	4 35	7 36	0 58	4 40	7 30	1 4	4 45	7 25	1 10
15	T	4 36	7 35	1 31	4 41	7 29	1 38	4 46	7 24	1 45
16	F	4 37	7 34	2 18	4 42	7 29	2 25	4 47	7 24	2 33
17	S	4 37	7 34	3 14	4 43	7 28	3 21	4 48	7 23	3 28
18	S	4 38	7 33	rises	4 44	7 28	rises	4 49	7 23	rises
19	M	4 39	7 32	8 42	4 45	7 27	8 37	4 50	7 22	8 32
20	T	4 40	7 32	9 8	4 45	7 26	9 5	4 50	7 21	9 1
21	W	4 41	7 31	9 30	4 46	7 26	9 28	4 51	7 21	9 26
22	T	4 42	7 30	9 53	4 47	7 25	9 52	4 52	7 20	9 52
23	F	4 44	7 29	10 13	4 48	7 24	10 14	4 53	7 19	10 15
24	S	4 44	7 28	10 35	4 49	7 23	10 37	4 53	7 18	10 40
25	S	4 45	7 27	11 2	4 50	7 22	11 5	4 54	7 17	11 9
26	M	4 46	7 26	11 33	4 51	7 21	11 38	4 55	7 17	11 44
27	T	4 47	7 25	morn	4 52	7 20	morn	4 56	7 16	morn
28	W	4 48	7 24	0 14	4 52	7 19	0 20	4 56	7 15	0 27
29	T	4 49	7 23	1 4	4 53	7 18	1 11	4 57	7 14	1 17
30	F	4 50	7 22	2 6	4 54	7 18	2 13	4 58	7 14	2 21
31	S	4 51	7 21	3 18	4 55	7 17	3 25	4 59	7 13	3 32

PHASES OF THE MOON.

MOON.	D.	BOSTON. H. M.	N. YORK. H. M.	WASH'N. H. M.	CHA'STON H. M.	CHICAGO. H. M.
New M'n	3	0 41 mo.	0 29 mo.	0 17 mo	0 5 mo	11 35 mo.
1st Quart	10	5 56 mo.	5 44 mo.	5 32 mo	5 20 mo	4 50 mo.
Full M'n	18	9 3 mo.	8 30 mo.	8 19 mo	9 7 mo	7 37 mo.
3d Quart.	25	3 55 ev.	3 43 ev.	3 31 ev.	3 19 ev.	2 49 ev.

AMERICAN AGRICULTURIST.

NEW YORK, JULY, 1875.

It would be of great value if we were able, at this season, to forecast the weather for 24 hours. Although in no country in the world is the summer climate more favorable for harvest operations, (and few have so good a one), yet for the want of accurate knowledge of the premonitory symptoms of thunder showers, and other changes of the weather, farmers are often caught with their crops exposed, and suffer damage and loss. The farmer should have as accurate a "weather eye" as a sailor, for he is equally interested in changes of the weather. Except in very rare cases, the admirable weather reports of the Signal Office, can not be made available in time to be of use to the farmer, who must depend upon his own skill and tact in predicting the weather. We have found an aneroid barometer a very sensitive and trustworthy guide, and do not call to mind a single instance in which it failed to give warning of the approach of even a thunder storm some hours before it arrived. The backward motion of the index, is a sufficient notice to use every precaution against getting caught, but not of itself a warning to quit harvesting, for rain does not always follow a barometer falling. One needs only to make things safe as he goes; to cap the shocks, to haul in what is exposed, to hasten cutting grain that is ripe, and protect shocks with hay-caps or top-sheaves. "Forewarned is forearmed," and the warning is all that is needed. Some apparently threatening storms pass over without rain, and in such cases the little labor of preparing for them, is more than compensated by the sense of security one feels in being ready for the worst. There is little probability of higher prices for grain. There is nothing to regret in this. Business recovers slowly from its depression. Labor is everywhere a drug. Laborers generally are in such straits that cheap food is needed for their proper subsistence. The way to improvement seems to lie in fair if not abundant crops, and low prices. The farmer can not thrive while general business is depressed, and business matters are evidently settling down on a basis of low prices. If a calico dress costs only a dollar, those who make the material, must buy their food at proportionately low prices. It is the same with other clothing, shoes, iron, and all those things which enter into general use. The prices of these being now very low, if the prices of food are not proportionately low, some must suffer.

Hints about Work.

Harvest Work.—Field labor can hardly be subject to the same rules as in-door work. The more quickly the crops can be harvested and housed, the safer they will be. Extra hours can scarcely be avoided when the rush of work comes, and reasonable men will not object to it if the work is fairly compensated. In many years of farm work, we have always finished up at 4 o'clock on Saturdays, and never worked on a Sunday, yet never lost a pound of hay or of grain by observing these rules.

Bathing is not only a great preservative of the health, but it greatly promotes comfort. If there is no convenient shed or out-building, where a tub of water can be used for this purpose every evening, arrange a portion of the barn for bathing. Take a washtub with two or three pails of cold water, a large sponge or piece of flannel, and a piece of Castile soap. Dash a few spongefuls of water over the whole body, then wash with soap and water, rinse off, and rub dry with a coarse towel. This is a part of the daily training of the professional athlete, as it hardens the muscles, induces healthful and not debilitating perspiration, and sound restful sleep. Induce the hired men to bathe every night; they will work all the better.

Horses should have every attention that can ease their labors. It is not humane to turn a horse that has worked all day in the reaper, into a poor pasture, to pick his feed during the whole night, or lie and rest with a half filled stomach. (See article on clean stables, on page 280). If horses are turned out at night, they should first be well fed. Wash the legs with carbolic soap suds. Give drink frequently. Fresh cold water from the well, is highly injurious, the water should be as warm as the air, and a handful of finely ground meal, should be stirred in each drink.

Cows will need some succulent feed. The thinnings and suckers from the corn field will supply this. Let a boy take a wheelbarrow along a few rows, and gather a mess of fodder every afternoon.

Sheep.—The fly which produces the "grub in the head," (*Œstrus ovis*), will trouble the flock. The sheep, when that is present, will run with their heads to the ground, and stamp with the fore feet. Rub some pine tar on their noses, and keep it fresh and sticky. Tar is a good tonic, and helps sheep to resist other parasites. Keep them out of low wet pastures, which produce "rot." Milk the udders of ewes which have lost their lambs. See that the lambs have fresh tender pasture. "Roughness" will not do for lambs.

Hay.—Clover and orchard grass ought to have been cut before this. If not cut, lose no time in doing it; every day's delay greatly reduces the value of the hay. Timothy should not go past full blossom, unless to be left for seed. Red-top may be cut last of all. If there are a few loads of fine manure on hand, they will be of great use upon the freshly mown meadows.

Cutting Grain.—Everything should be fully prepared before harvest is begun. Wheat and rye that is left until dead ripe, may be thrashed as it is cut. It is best to cut before this period is reached. When the grain is firm but still soft, so that it can be pinched in two with the thumb-nail, it is in good order for cutting, and will not shell out. Oats do not ripen evenly, and may be cut when the largest portion of the crop is ripe. Cut as much as possible when the dew is on, to prevent shelling. Cut barley as nearly ripe as may be. The conditions being right, it is safest to cut, bind and shock grain the same day. If a sudden shower comes up, it is soon secured. As binding and shocking must be done, no time is lost in doing it at once.

Cultivating Crops.—Corn and roots must not be neglected. Keep the ground mellow and free from weeds. Nothing helps so much as this to overcome the effects of dry weather. Cultivate no root crops or beans while the soil and plants are wet.

Colorado Potato Beetle.—Give this insect no rest.

Attend to this matter before breakfast every morning, and if Paris Green must be used, sprinkle it while the dew is on the leaves, (see article on this subject last month, on page 226).

Summer Fallows.—As soon as a green tinge appears on a summer-fallow, it needs attention. Go over it with the harrow or the cultivator. The surface should never be allowed to crust or bake over after a rain, for then the benefits of the air and moisture are lost. Growing weeds on a fallow to plow under, in the hope of gaining the green manure, may defeat one great object of the fallow. Some weeds ripen their seed before their blossoming is suspected, and a fresh crop of weeds is thus sown without knowing it. Where a crop of clover has been plowed in, do not disturb it by replowing. Work the soil with the cultivator or a Share's harrow, or horse-hoe, and mix any fine manure with the surface soil. An oat or barley stubble intended for wheat, should be plowed as soon as the crop is off, three or four inches deep, and this surface repeatedly rolled, harrowed, or cultivated, will prevent the under soil from becoming hard, and will act as a mulch. Then plow immediately before drilling the seed, and it will be easier and better than leaving the stubble to bake and harden.

Buckwheat may be sown early this month, and if the soil is good, a seeding of grass and clover, will often make a good catch. Rough pieces of ground may thus be re-seeded economically. One bushel of seed to the acre is ample. The grey buckwheat is the best for flour. The variety known as Indian wheat is only suitable for stock feed, and scarcely fit for that, where better varieties may be grown.

Forage Crops.—Corn may still be planted for fodder. Ruta bagas and yellow Aberdeen turnips, should be sown immediately. White turnips may be left until early next month. Millet or Hungarian grass, may be sown now for a crop of hay. Sorghum thickly sown in drills two feet apart, makes valuable fodder to use green, but it is hard to cure. 200 lbs. of guano or blood manure per acre, will enable late fodder crops to push rapidly.

Work in the Horticultural Departments.

Summer drouths have come earlier this season than usual, and should they long continue, the propsect of good crops will be small. These annual drouths, and the means of modifying them, have been much discussed of late. In hilly countries, where living springs are abundant, water may be easily turned aside, and made to irrigate the crops; in level sections, drive and other wells, from which the water is raised by wind-mills, and various other contrivances, may be used to advantage, and often with profit. In places where it may not pay for a farmer to irrigate his crops, the gardener, with his few acres from which he gets large returns, would find it profitable, especially if there are springs on higher ground than that to be irrigated. However dry it may be, weeds will grow rapidly, and constant care is necessary to keep them down, and the crops in good condition.

Fruit Garden.

Strawberries.—After the plants are through bearing the mulch should be removed, and the soil between the rows stirred, and weeded, and manured; if fine manure is not to be had, apply a good dressing of ground bone or other fertilizer. If new beds are to be set, let enough runners grow to furnish plants, and remove the rest.

Grape Vines.—Tie up the young growth before it becomes too long, and gets broken by the wind; rub off all useless shoots that start. For mildew apply sulphur with a bellows made for that purpose. Hand-pick the beetles and caterpillars which infest the vines. Make layers by burying the shoots in the soil when they become firm and woody, allowing the upper part to remain uncovered.

Raspberries.—As soon as through bearing, cut out the old canes and tie up the new growth. Three or four new canes to a plant are enough.

Currants and Gooseberries usually throw up vigorous shoots from the base of the plants; these, if not needed to take the place of old ones, should be cut out. Use powdered white hellebore for the worm which destroys the leaves.

Blackberries.—The new growth which is to produce fruit next season, should be tied to stakes, and kept in proper shape by pinching. Do not allow the stems to grow over five feet high, and the side shoots should be pinched back when they are 18 inches long. Where plants appear between the rows, dig them out if not needed for new plantings.

Thinning the fruit upon dwarf trees, is especially necessary, as they are liable to over-bear. This should be done soon after the fruit forms, so that the nourishment may be given to the remaining fruit. The quality of pears and peaches especially may be greatly increased by this treatment.

Orchard and Nursery.

But little can be done here beyond what was suggested in the notes given last month. Always refer to the notes of the previous month, as things are hinted at there, which are just as applicable at the present time, and are often more conveniently attended to later in the season.

Marketing.—Crates, boxes, baskets, and barrels, should be provided for sending fruit to market. These should all be marked with the owner's name and address, and the fruit should be assorted and packed, that the dealers may know that it is first-class. All this will pay in the end, both in the increased price and demand, even in years when fruit is abundant.

Pruning may yet be done, and this season is by many regarded as the best for cutting out large limbs, as the wounds heal rapidly.

Budding is usually commenced this month, but the only safe rule is to do the work when good, well-formed buds may be had, and the bark of the stock will lift easily.

Slugs which so disfigure pear and other trees, may be destroyed by dusting with powdered lime.

Insects.—For destroying, or preventing their attacks, see notes under this head for last month.

Grafts often grow so vigorously that there is danger of their being broken by high winds. To prevent this, pinch the more rapid growing shoots.

Kitchen Garden.

Every available spot in the garden should be occupied with something, and succession crops must be planted, if a constant supply of vegetables is wanted for market or family use. Oftentimes two crops may be planted on the same ground to advantage, as lettuce between the rows of cabbages; the lettuce will be off in time to allow the cabbage all the room needed; or horse-radish may be put in among early cabbages, to grow after they are off. If enough manure is supplied for both crops, this is found to be profitable practice.

Beans.—When pole beans reach the top of the poles, they should be pinched. Bush sorts may be planted yet, and produce a good crop. Ground where early beans have been, may be planted with quick-growing crops.

Beets.—Thin those already needing it, and plant early sorts for late use.

Cabbages and Cauliflowers.—Transplant for late crops this month, using only the most vigorous plants. There are many spots around every garden, where a few cabbages can be grown, and all such places should be occupied. If transplanting must be done during dry weather, the roots should be placed in a thin mud for a few minutes, until they are well coated with it; this requires but little time, and often saves many plants. Hoe established plants as often as possible.

Carrots.—Thin out as soon as large enough to handle, and keep the rows clear of weeds until the tops cover the ground and prevent working. Those which throw up a flower-stalk should be pulled out.

Celery need not be planted out before the middle or end of July, and if the plants become well established, then they will grow rapidly when the weather becomes cooler. Market-growers always plant on level ground, and not in trenches, as the first is much the easier way. The dwarf or smaller growing kinds, are best for family use, but the larger growing sell best in most markets.

Corn.—Sow a few rows of the early sorts this month, so as to have some for late picking. As fast as the early sorts are exhausted, the stalks should be cut, and either fed to cattle fresh, or cured for winter fodder.

Cucumbers.—If pickles are needed, plant now in well manured hills 4 feet apart each way. Where pickles are raised for the New York market, they must be sent in green, as it is impossible to sell those put down in salt to the pickle dealers, each company having its own way of salting, which is kept secret. Save the earliest and finest formed for seed; careful selection of seed for a few years will produce a desirable strain.

Egg-plants require a great degree of heat in order to grow rapidly, and if liquid manure is given occasionally, it will be a great help. Place hay or straw around the plants to keep the fruit from contact with the ground.

Endive.—Sow for a late crop of salad now.

Herbs are usually grown on land which has already borne one crop during the season. When a damp day occurs the young plants may be transplanted from the seed-bed to a rich spot prepared for them. Thyme, sweet marjoram, sage, and summer savory are the sorts commonly grown.

Leeks.—Thin out the plants to 5 or 6 inches in the rows, keep clear of weeds, and transplant the thinnings to the same distance.

Lettuce.—Set out plants in a cool shady spot.

Melons.—Cultivate the ground as long as it can be done with safety to the plants; afterwards hand-pull the weeds as they appear above the vines. Remove all fruit not likely to ripen.

Onions when sold green in the market are made into neat bunches with the tops on, and bring a higher price than when loose and cut short. Keep the late crop free from weeds.

Rhubarb.—As soon as fruit becomes plenty, the plants should have a rest. Keep the flower-stalks cut, and give a dressing of manure.

Sweet Potatoes.—Keep free from weeds, and move the vines every week to keep them from rooting.

Turnips.—Thin and weed the late plantings until the tops cover the ground.

Tomatoes.—Tie up to stakes or trellises to keep the fruit from the ground. Cut out the weak shoots and pinch back strong growing ones. Destroy the large green caterpillar or "worm," as it eats both plant and young fruit.

Flower Garden and Lawn.

In order to have a fine garden and lawn, everything must be kept neat and in order, and to do this requires time and care, and to be done well must be a labor of love.

Lawn.—This must be mowed every week if the weather is moist and favorable to growth; during dry seasons once in ten days or a fortnight is enough. Dig or pull out all perennial weeds by the roots, the annual ones can be killed by mowing often enough to prevent seeding.

Bedding Plants will grow luxuriantly at this season, and must be kept clear of weeds. Plants grown for their foliage alone will often show flower-stalks; these should be cut as soon as they appear.

Seeds.—Gather as fast as they ripen, and sow the perennial sorts in shallow boxes placed in a convenient spot for watering and shading during dry times. Label as soon as gathered, otherwise it will be difficult to determine them.

Walks.—Gravel walks and drives require watering and rolling during dry times, in order to keep them hard and smooth. Sifted coal-ashes mixed with coarse sand, with a little loam, make good walks; their use in this manner helps to get rid of the ashes; the coarser portions or cinders make good foundations for walks.

Greenhouse and Window Plants.

It will be quite difficult to keep the greenhouse cool during these hot days, unless a shading of some kind is used. A screen of thin muslin may be arranged upon the outside, or the glass whitewashed. Whitewash is the least trouble; the fall rains will remove the greater part of the lime by the time more sun is needed. Sprinkling the walks and floor during the day will materially reduce the temperature. Fumigate the plants with tobacco smoke once or twice a week to kill the "green-fly," and shut up the ventilators once a week and give the plants a thorough showering to destroy the red-spider; this should be done late in the afternoon. Prepare soil and pots for use in the fall, and get everything needed in readiness for the winter. Where much sphagnum moss is used, this or next month is a good time to gather a stock, as the swamps are usually quite dry at this season.

Commercial Matters—Market Prices.

CURRENT WHOLESALE PRICES.

	May 13.	June 12.
PRICE OF GOLD	115 1-2	116 7-8
FLOUR—Super to Extra State ₱ bbl	$4 85 @ 6 10	$4 50 @ 5 85
Super to Extra Southern	5 00 @ 8 50	4 60 @ 8 25
Extra Western	5 20 @ 8 50	4 85 @ 8 50
Extra Genesee	5 50 @ 7 25	5 35 @ 7 00
Superfine Western	4 85 @ 5 20	4 50 @ 4 80
RYE FLOUR	4 35 @ 5 50	4 30 @ 5 50
CORN-MEAL	4 00 @ 4 80	3 60 @ 4 50
WHEAT—All kinds of White	1 40 @ 1 47½	1 25 @ 1 35
All kinds of Red and Amber	1 15 @ 1 43	1 00 @ 1 33
CORN—Yellow	80 @ 90	83 @ 86
Mixed	87½@ 92½	78 @ 85
White	89 @ 90	85 @ 90
OATS—Western	75 @ 78½	70 @ 76
State	75 @ 78½	70 @ 76
RYE	1 00 @ 1 09	87 @ 1 00
BARLEY	1 25 @ 1 55	Nominal.
HAY—Bale, ₱ 100 lbs	60 @ 1 10	60 @ 1 10
STRAW, ₱ 100 lbs	45 @ 80	50 @ 90
COTTON—Middlings, ₱ lb	16¾@ 16½	15¾@ 16
HOPS—Crop of 1874, ₱ lb	28 @ 45	25 @ 38
FEATHERS—Live Geese, ₱ lb	33 @ 60	35 @ 62½
SEED—Clover, ₱ lb	11½@ 12¾	11 @ 11¾
Timothy, ₱ bushel	2 55 @ 2 75	2 55 @ 2 75
Flax, ₱ bushel	2 00 @ 2 20	1 85 @ 2 00
SUGAR—Refi'g & Grocery ₱ lb	7¼@ 9¼	7¼@ 9⅝
MOLASSES, Cuba, ₱ gal	37 @ 46	30 @ 43
New Orleans, ₱ gal	70 @ 76	68 @ 75
COFFEE—Rio (Gold)	16 @ 19	16 @ 19
TOBACCO, Kentucky, &c., ₱ lb	10 @ 28	10 @ 28
Seed Leaf, ₱ lb	7 @ 55	7 @ 55
WOOL—Domestic Fleece, ₱ lb	28 @ 62½	25 @ 60
Domestic, pulled, ₱ lb	25 @ 50	25 @ 51
California, clip	18 @ 33	15 @ 35
TALLOW, ₱ lb	8¾@ 9¼	8¾@ 8⅝
OIL-CAKE—₱ ton	44 50 @48 50	39 00 @42 50
PORK—Mess, ₱ barrel	21 90 @22 15	19 75 @19 90
Prime Mess, ₱ barrel	19 50 @19 75	— @18 75
BEEF—Plain mess	10 00 @ —	8 50 @10 00
LARD, in trcs. & barrels, ₱ lb	14¼@ 15⅝	13 @ 13⅞
BUTTER—State, ₱ lb	15 @ 30	15 @ 28
Western, ₱ lb	13 @ 24	12 @ 24
CHEESE	4 @ 15½	4 @ 12½
BEANS—₱ bushel	1 50 @ 3 10	1 55 @ 3 15
PEAS—Canada, free, ₱ bu	1 19 @ —	1 15 @ —
EGGS—Fresh, ₱ dozen	15½@ 17	18 @ 20
POULTRY—Fowls	16 @ 26	14 @ 25
Turkeys—₱ lb	17 @ 23	16 @ 19
Geese, ₱ pair	1 00 @ 2 25	1 00 @ 2 75
Ducks, ₱ pair	75 @ 1 00	65 @ 1 00
PIGEONS, ₱ pair	1 00 @ 1 75	50 @ 2 00
PLOVER, ₱ dozen	1 25 @ 1 37	1 00 @ 1 25
SNIPE, per dozen	30 @ 1 37	30 @ 1 25
TURNIPS ₱ bbl	1 75 @ 2 00	2 00 @ 3 25
CABBAGES—₱ bbl	— @ —	1 00 @ 3 50
ONIONS—₱ bbl	50 @ 1 00	50 @ 1 75
ONIONS, new Bermuda, crate	1 00 @ 1 25	75 @ 1 00
POTATOES—₱ bbl	2 00 @ 2 75	1 25 @ 3 00
SWEET POTATOES—₱ bbl	3 00 @ 4 00	2 00 @ 3 50
BROOM-CORN	9 @ 15	8 @ 14½
RHUBARB, per 100 bunches	— @ —	6 75 @ 7 50
LUTTUCE, per bbl	— @ —	2 00 @ 7 00
POTATOES, new Bermuda, bbl	7 50 @ —	1 75 @ 3 50
ASPARAGUS, ₱ doz. bunches	2 00 @ 5 00	1 25 @ 2 25
RADISHES, ₱ 100 bunches	1 00 @ —	75 @ 1 00
STRAWBERRIES, ₱ quart	25 @ 40	3 @ 15
APPLES—₱ barrel	1 50 @ 2 50	75 @ 2 25
CRANBERRIES—₱ box	— @ —	1 00 @ 2 00
GREEN PEAS, ₱ bbl	— @ —	3 00 @ 5 00
TOMATOES, ₱ crate	30 @ 1 00	— @ —
SPINACH, ₱ bbl	4 00 @ 4 50	75 @ 1 50
STRING BEANS, per hf. bbl	— @ —	3 50 @ 4 00
CUCUMBERS, per bush. box	— @ —	2 00 @ 6 00

Gold has been up to 117¼, and down to 115⅝, closing June 12th at 116⅞, as against 115¾ on May 12th..... With more liberal arrivals, and considerable pressure to realize on receipts promptly, Breadstuffs have been depressed and generally quoted lower, leading to more activity in the dealings, which, in low grade Flour, Spring Wheat, and mixed Western Corn, have been largely on export account. Toward the close, Flour, Wheat, and Corn closed stronger, on less extensive offerings of supplies for prompt and forward delivery. Rye, heavy and irregular. Oats, in less request, and tending downward. Barley, wholly nominal in the absence of stock. Barley Malt wanted at full rates.....Provisions have declined materially, and have been less sought after. The speculative business in Pork and Lard has been on a restricted scale....Cotton has also been quoted cheaper, influenced by the unfavorable Liverpool advices, and the more encouraging crop reports. Demand, fairly active, at the reduced figures, mainly for forward delivery....Wool has been in less request, and quoted weak in price, under the increasing offerings of new clip....Tobacco has been in fair demand, and held with firmness....Hay and Straw, more salable at current quotations.....Hops, lower and dull....Petroleum and Naval stores, less inquired for at easier prices....Seeds, neglected and almost nominal as to value....Ocean freights decidedly firmer, with Grain, Flour, and Provision room most wanted. Flour by sail and steam to London, 2s. 4½d. per bbl.; Grain by sail, to do., 8¼ @ 8⅝d. per bushel; Grain by steam to Liverpool, 8¼d., and by sail, to do., 7d. per bushel. Grain tonnage for Cork and orders, 6s. @ 6s. 3d.; for Penarth Roads, and orders, 5s. 9d.; for the Continent, 6s. @ 6s. 3d. per quarter.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, from our daily record during the year, show at a glance the transactions for the month ending June 12th, 1875, and for the corresponding month last year:

1. TRANSACTIONS AT THE NEW YORK MARKETS.

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 d's *this* m'th	267,000	3,315,000	2,604,000	37,000	161,000	916,000
26 d's *last* m'th	264,228	817,000	1,623,000	33,000	239,000	561,000
SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 d's *this* m'th	381,000	4,102,000	2,817,000	61,000	151,000	1,363,000
26 d's *last* m'th	336,000	1,921,000	2,700,000	64,500	138,000	1,814,000

2. *Comparison with same period at this time last year.*

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 days 1875	267,000	3,315,000	2,104,000	37,000	161,000	716,000
26 days 1874	359,000	5,849,000	1,915,000	167,000	58,000	753,000
SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 days 1875	381,000	4,102,000	2,817,000	61,000	151,000	1,363,000
26 days 1874	237,000	4,107,000	2,312,000	89,000	104,000	1,416,000

3. *Stock of grain in store at New York.*

	Wheat. bush.	*Corn.* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.	*Malt.* bush.
June 7, 1875	668,456	1,304,404	27,678	1,163	546,157	267,085
May 11, 1875	969,804	1,542,924	16,124	16,537	545,209	229,655
Jan. 11, 1875	3,675,122	1,049,900	50,889	191,470	877,014	145,647
Nov. 9, 1874	3,680,141	1,727,510	19,123	117,185	794,722	135,882
June 8, 1875	383,169	116,651	68,188	1,573	323,343	74,669

4. *Exports from New York, Jan. 1 to May 10.*

	Flour. bbls.	*Wheat.* bush.	*Corn.* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.	*Peas.* bush.
1875	784,328	6,989,147	5,515,451	97,487	165	51,990	213,582
1874	957,783	15,083,546	7,021,960	443,193	100	57,585	236,916
1873	526,562	3,241,919	5,398,449	20,823	16,526	13,646	38,200
1872	363,380	3,242,961	6,966,769	252,624	22,658	15,178	—
1871	874,090	6,153,722	3,200,632	34,919	88,348	14,889	—
1870	727,097	5,435,282	130,519	36,595	—	9,378	—
1869	420,294	3,802,539	1,328,869	—	—	40,401	—
1868	403,556	2,580,805	3,559,097	158,093	—	39,008	—

New York Live-Stock Markets.

RECEIPTS.

WEEK ENDING	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*	*Tot'l.*
May 17	6,052	73	3,963	16,901	30,133	57,122
May 24	8,426	59	4,670	14,821	29,453	57,429
May 31	8,031	54	5,057	17,405	25,238	55,785
June 7	9,970	120	4,441	23,422	26,856	64,809
June 14	8,817	73	4,205	20,289	26,918	60,302
Total for 5 Weeks	41,296	379	22,336	97,838	138,598	295,447
do. *for prev. 4 Weeks*	36,948	423	12,003	75,835	124,523	249,762
	Beeves.	*Cows.*	*Calves.*	*Sheep.*	*Swine.*	
Average per Week	8,259	76	4,467	18,567	27,749	
do. do. *last Month*	9,237	106	3,002	18,964	31,132	
do. do. *prev's Month*	8,010	127	1,159	18,142	23,950	

Beeves.—The past month has been a good time for sellers. Opening with light receipts, the market was advanced ½c. on extra, and ¼c. on the average, and although the advance was resisted by buyers, who held off the next week and gained an advantage of ¼c., this was soon lost, and with a strong market the largest receipts for some time were moved off at a gain of ¼c., which was held. In the West the same active feeling was experienced as here, and the Live-Stock Reporter became jubilant over the improved demand and higher prices. One year ago No. 1 spring wheat was 30c. a bushel higher than now, and the average of the stock market then was ½c. per lb. lower than it is to-day. Graziers have thus the better of the grain grower just now. As we close the market is active and firm, with sales of extra beeves at 13¾ @ 14c., to dress 58 lbs.; good native steers at 11 @ 13¼c., to dress 56 to 58 lbs. Texans brought 7½ @ 11¼c., on 54 to 56 lbs., and stockers, to dress 55 lbs., sold for 9c. per lb.

The prices for the past five weeks were as follows:

WEEK ENDING	*Range.*	*Large Sales.*	*Aver.*
May 17	9 @13½c.	11 @12 c.	11½c.
May 24	9 @13½c.	11¼@11¾c.	11½c.
May 31	9 @13½c.	11½@12 c.	11¾c.
June 7	8½@14 c.	11¾@12¼c.	12 c.
June 14	7½@14 c.	11¾@12¼c.	12 c.

Milch Cows.—The demand for cows has been light all through the month. Prices have been fair at from $50 to $80 on the average. One fine cow and calf brought $95. With a dull market, prices are steady with an average of $55 to $70 for fair to choice, extra cows bring $90, calf included....**Calves.**—A fair business has been done in veals at uneven prices. The market has fallen off ½c. one week to gain it back the next. At the close of our report prime veals were selling for 7c. @ 8c. ₱ lb, and buttermilk calves at 5c. @ 6c. ₱ lb....**Sheep.**—The market for sheep and lambs has been unsteady. Opening at the commencement of our report, strong with an advance of ½c. ₱ lb, it became weak and lower, and closes dull with prices for unshorn sheep 6¼c. @ 6¾c., and for clipped 5¼c. @ 6c. ₱ lb. Lambs sold for 9c. @ 10c. for Kentucky, and 9¼c. for Virginia weighing 49 to 50 lbs. per head. Jersey lambs 55 lbs. per head brought 13c. per lb.....**Swine.**—Hogs have been dull, but steady during the past month. No live hogs have been offered, and as we close, city dressed sell for 9¼c. @ 9¾c. per lb.

ALL ABOARD!

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Remitting Money: — Checks on New York City Banks or Bankers are best for large sums; make payable to the order of **Orange Judd Company. Post-Office Money Orders** for $50 or less, are cheap and safe also. When these are not obtainable, **register** letters, affixing stamps for postage and registry; put in the money and seal the letter in the presence of the postmaster, and *take his receipt for it.* Money sent in the above three methods is safe against loss.

☞ **N.B.—The New Postage Law.**—On account of the new postal law, **which requires pre-payment of postage by the publishers, after January 1st, 1875,** each subscriber must remit, in addition to the regular rates, **ten cents for prepayment of postage by the Publishers, at New York, for the year 1875.** Every subscriber, whether coming singly, or in clubs at club rates, will be particular to send to this office postage as above, *with his subscription.* Subscribers in British America will continue to send postage as heretofore, for pre-payment here.

Bound Copies of Volume Thirty-three are now ready. Price, $2, at our office; or $2.50 each, if sent by mail. Any of the last eighteen volumes (16 to 33) will also be forwarded at same price. Sets of numbers sent to our office will be neatly bound in our regular style, at 75 cents per vol. (50 cents extra, if returned by mail.) Missing numbers supplied at 12 cents each.

"Science Applied to Farming," on page 254, gives some useful and important hints on the value of several kinds of feed.

Our "National BAZAAR" this month, contains the usual assortment of good things, advertised by trustworthy men. It will always pay any one to look *all through* the advertisements, and see what is offered, by whom, at what price, etc. Many a man has got a valuable new idea from seeing what others say about business matters, which has started his own thoughts in a profitable direction. When writing to any of our advertisers, for information, catalogues, etc., or sending orders to them, please let them know that you belong to the great *Agriculturist* family, and you may expect and will receive good treatment. Our advertisers know that we carefully exclude any one who does not promptly perform what he promises in his advertisement.

Fruit and Produce, may be consigned for sale to Messrs. Meyers & Alley, 83 Murray Street, with confidence in having them quickly and well sold, and honest returns made at a reasonable commission.

A Summer Resort, Quiet, Home-like, Healthful, with charming surroundings in the neighborhood, and at reasonable rates, can be found by addressing "Maplewood," Ellenville, Ulster Co., N. Y., or inquiring at No. 2 Exchange Place, (Room 6,) N. Y. City, between 9 A. M. and 3 P. M.

Potato Bug—Paris Green.—F. W. Devoe & Co., 115 & 117 Fulton St., N. Y., issue a circular giving an article from the Report of the Mich. Board of Agriculture, by our friend Prof. A. J. Cook, on the use of Paris Green. Devoe & Co. claim that they make only pure Paris Green. There is a plenty of the adulterated article to be had.

American Veterinary College.—This college, recently incorporated, is under the direction of the former Faculty and Medical officers of the New York College of Veterinary Surgeons. Prof. A. Liautard is Dean of the faculty, and Dr. A. Large is the professor of veterinary practice. Under the direction of experienced professors this college offers a good opportunity for students who desire a veterinary education. The session commences in October. The fees are $135. Circulars may be obtained of Dr. A. Liautard, at the college, 141 West 54th st., New York.

Professor Turned Farmer.—Professor N. entered our office the other day. He was dressed in a suit of black, not of the newest fashion, but highly respectable, with white cravat, polished boots, and withal smoothly shaved. We had known him for a score of years, first as a professor in a Biblical Institute, then as a writer in church periodicals, and lastly as United States Consul at one of the inland cities of Germany. But his consulate ceased and he returned to his native country. We presumed, of course, that he had resumed his old occupation of teaching, or that he had settled down as a writer, for which he possesses rare qualties, when in course of conversation he announced himself a farmer. Had actually exchanged the professor's chair for the plow, and dropped his pen for the hoe. Our astonishment was freely expressed. We said to him, "Why, Professor, some people say that a man cannot live by farming, even if raised to the business, how then do you expect to succeed, who are without experience?"—"Oh," he replied, "men cannot live if they depend on others to do their work, but it hasn't cost me over seven dollars all this spring. I have done my own plowing, planting, and chores, and as I must starve unless I work, I conclude to work so as not to starve."—Our friend looks healthy, cheerful, and *gritty.* Perhaps here is a lesson for seedy merchants and bankers who are troubled beyond measure for simple support in these hard times. Let them go to mother earth with Queen Esther's resolution, "If I perish, I perish." C. C. N.

Buffalo Gnat.—A brief account of this mischievous insect, is given on page 262, in which, by the dropping of a single letter, the scientific name of the insect is spelled incorrectly. It should be *simulium,* and not *simulum,* as it stands there.

Produce Commission—Removal.—The old house of W. A. Covert & Co., has taken up new quarters at 112 Warren St., N. Y.

Death of George S. Parsons.—Mr. Parsons was well known to those dealers in and purchasers of agricultural implements, as he was for many years with R. H. Allen & Co., and more recently with Carr & Hobson, of New York. He died on June 1st, of Brights disease, and though only 28 years of age, was a well known and popular member of the trade.

Guano.—"M." Jersey City. Plants with delicate foliage will be very apt to be injured, if guano is dusted upon their leaves.

☞ **Don't fail to read about the**

Wonderful Menagerie,

On Page 283.

The Colorado Potato Beetle has put in its appearance, and has now reached salt water. Some of the potato growing counties of New Jersey are badly infested, and they are equally numerous in Pennsylvania, and southward. Last fall we gave warning that they were near the coast, and have this year given timely notice. Knowing that they were to be expected, the writer began to examine his potatoes as soon as they were fairly up, and in the last week in May a few bugs were found. Examination was daily made of the vines, and a few hundred in all collected, and what few eggs were found destroyed. If the first ones which come from their winter quarters in the ground, are allowed to breed, then the case becomes serious, but having, while the plants were small, and the beetles easily seen, disposed of the first brood, we hope to keep them in check, though no doubt some will come in from other places, and it will not do to omit frequent examination. Those who have been so unfortunate as to allow the insects to get the mastery, must resort at once to Paris Green. Full particulars as to its application, are given in June, page 226. Every day of delay only makes the matter worse. If the bugs are few, pick by hand, and destroy the eggs, which will be found in little orange-colored clusters on the leaves. If too many to pick, then use Paris Green, observing *all the precautions* given in the article referred to. Keep up the watch; if no bugs are found now, they are liable to come at any time during the summer, and success depends greatly on beginning in time.

The Peach Crop.—The peach trees in Delaware and Maryland, were, as usual, all badly injured by the severe winter. Again in spring, that frost came and killed all the buds, as it is bound to do every year. Very likely the convenient peach bug will be along at the proper time, it came last year and was very destructive—in the newspapers at least. On the other hand, we have it from the best sources, that up to the middle of June the prospects were that the crop will be the greatest ever known in the great peach counties of Del. and Md.

Agricultural College.—"A Correspondent," who gives no clue to his whereabouts, not even his state, dates his letter May 31st, and asks us to reply in June. We don't know who this youth is, or where he lives, but he needs many things more than he does an Agricultural College. He should learn to spell, and should know that every third word does not begin with a capital letter. Asking if students "are Learned to plow Good," shows that he has not done with the common school. He should learn that it is impolite to write to any one without giving his name, and that it is customary to give town and state. Take our advice, young man, and get a decent common-school education before you think of anything beyond.

SUNDRY HUMBUGS.—The letters we receive thanking us for giving warning against certain schemes, and thus saving the writers from fraud, are so numerous that we are sure that these exposures have been of great benefit to our readers. But this is only one side of the matter, certain other letters make us feel that there is a class of persons which, do what we may, we cannot help, and their letters are quite as discouraging as the others are the reverse. It seems very strange when we have exposed a scheme month after month, and warned our readers against it in the plainest language, to receive a letter asking us the subject, which we are asking the very question we have already answered. Then again, if there is [illegible] we have tried to state clearly, and enforce our repetitions, it is the fact that we regard all advertising doctors as useless or dangerous, and have stated that we make no exceptions to this—yet more of the time of one man than we can spare is taken up in answering letters from all over the country asking if we know anything [illegible] this or that advertising doctor, or if such a one is an exception to the general rule. These inquiries are so often that we sometimes wonder if these people read what is written. While we are willing to aid our readers with advice upon schemes not already treated of in this column, we beg of them not to ask about [illegible] already disposed of. We have no information to [illegible], and cannot add to what has been said, and it is [illegible] a tax upon our time to repeat in a private letter what has already been published for the general good. We are led to these remarks by several letters now before us which the writers need not have written had they looked over the humbug articles for the past few months. Some of these letters are inquiries

ABOUT WALL-STREET BROKERS,

and we have already given abundant warning in this matter. As bad a name as the street has, there are men in it of the highest integrity who advertise their legitimate business, so we cannot say that all Wall-street brokers are frauds. But where you find those calling themselves brokers, advertising in obscure country papers, setting forth the hope of immediate great returns for small investments, you may be very sure that such are of the kind known as "curbstone brokers," who have no standing at the regular board, but belong to that class of "shysters" who give the street its bad name. It is safe to say, in every case and all the time, one who is not familiar with stock operations should have nothing to do with the street either personally or by proxy. "Never play at a game you do not understand."

HEAVY LOSSES IN EVERY COMMUNITY

annually result from small frauds which the people acquiesce in if they do not encourage; the small losses in each family every year are in the aggregate very large. Some storekeepers designedly cheat, while many others are careless, and those who buy their supplies at retail, not only pay a larger price for a given weight or measure, but they often do not get the weight they pay for. In cities weights and measures are, or should be, annually examined and sealed; this, while it prevents much unintentional false dealing, does but little to avoid actual fraud; but in the country the buyer has not even this protection. Those who have never given attention to the matter would be astonished to find how few scales, weights, and measures are really accurate. Every family should have correct scales and weights, and re-weigh each article in the package as it is brought home, if found short-weight, return it immediately, even at the cost of some trouble, and ask that it be made right. As soon as it is understood that you intend to have what you pay for, there will be little trouble in future. Some may say that

"IT LOOKS SO SMALL AND MEAN

to make a fuss about an ounce of coffee or a quarter of a pound of sugar." It is not mean, but just. For example, you agree to pay 35c. for a pound of coffee, and law and custom decide that you are entitled to 16 avoirdupois ounces. If you get but 15 ounces, it is your duty to show the dealer, if he is honest, that his scales are inaccurate, and that he is unconsciously defrauding his customers; if the short weight is intentional, the dealer should be exposed. Let any one who thinks it mean to insist on full weight, try the other side of the case and give 33c. instead of 35c., the agreed price of the coffee, and see if the seller will think it "mean" to ask for the other three cents. Not only in articles that are sold by weight

and measure, but in various put-up articles is there great fraud. So bad has this matter of short weights become in articles put up in cans, such as tomatoes, fruits, etc., that the dealers have had a meeting to agree upon uniformity in packages. Three pound cans of tomatoes seldom weigh more than two and a half pounds, and unless carefully examined, the difference between the two is not noticed. Purchasers are partly to blame for this, as they buy what seems to be the cheapest without weighing. The whole business of retailing is full of small frauds, which all honest dealers will be glad to abolish, but the reform must begin with the purchasers, who should insist in getting just what they pay for, and if makers or putters-up of any articles in cans, bottles, or parcels give short weight, don't buy their goods....A friend sends us a lot of advertisements cut from a paper in Ohio and asks: "How can

A RESPECTABLE PAPER

print such things?"—We really do not know, and advise our inquiring friend to ask the paper that does it. Still what can be expected of an ordinary secular paper when the Independent, which professes to be a religious journal, not only admits quackery into its columns, but writes editorials in defence of it.

MEDICAL MATTERS

seem to be very quiet. A postmaster in Kentucky sends us the circular of one Dr. Van Meter, and asks us what we think about it. We think it about as fine a specimen of vanity and quackery as we have lately seen. He has a map showing his route of travel, a certificate of good character from certain "elders," he promises great things and will no doubt carry off from the places down upon his map more money in the one or two days he will stop at them, than the well educated, thoroughly competent physicians at those places, who are too modest and have too much respect for their profession to resort to such means, can make in a year. Whenever a "Doctor" enumerates what diseases he can cure, he shows the shallowness of his acquirements. Travelling quack doctors have long been known, and probably the world will be afflicted by them for a long time to come. We have seen one of these chaps come into a place where there was an abundance of worthy physicians, and by his flourish of hand-bills, and great pretentions attract the most wealthy people in the town to the hotel where he remained a few days, and depart with hundreds of dollars. These same wealthy people being ready to run after the next quack who comes along.

FRAUDS IN LIVE-STOCK.

There have come to us so many complaints of the doings of some live-stock dealers in Chester Co., Pa., that we are very sure that they cannot be accidental, and have no doubt that actual fraud has been practiced, indeed one of our contemporaries has published the firm by name as swindlers. "W. W. B." asks if in this denunciation we refer to Potts Brothers, of Parkersburg, Pa., who are dealers in stock. Certainly not. We have never had any complaints of the manner in which Messrs. Potts Brothers conduct their business, and should be very sorry if our remarks should be construed to their injury, as we have reason to believe they are quite different people from those referred to. We have heard, what we hope may be true, that the fraudulent chaps have run the length of their rope and gone out of the business.

SENDERS OF CIRCULARS

must make some funny mistakes; we happen to know of a case in which one of the most thoroughly confirmed and inveterate of old bachelors received by mail a prospectus of somebody's "Marriage Guide," which "points out the perils that beset the inexperienced youth," etc. ....We learn that many postmasters engage in distributing circulars of various quacks as well as of lottery and other swindling schemes. Such should be aware that the present Postmaster General is a man who tolerates no nonsense, and should a complaint be made that a postmaster engages in any such work as this, such postmaster would very soon find himself without any post-office. We advise our many friends among the postmasters not to allow their good nature to let them do any work of this kind. Mr. Jewell means business, as a postmaster in Wyoming Territory found out to his sorrow; the postmaster was in the pay of a lottery concern, and a special agent of the department put a stop to his career....A concern in St. Louis, Mo., sends out a most rascally circular to young men, the whole object of which is to work upon their fears, and as a matter of course make them think that their only safety consists in getting some of the nostrums offered in the circular. It would offend many good people if we were to speak as plainly as we would like in warning not only young men, but old ones, and women too, against the pernicious forms of quackery which have reference to sexual matters. If young people of both sexes could know that at a certain age new functions were developed, and that some things which take place in relation to these are perfectly in the order of nature, and not indications of anything wrong, they would be saved much anxiety and unhappiness. Mothers usually inform their daughters on such matters, but the boys are mostly left to pick up such knowledge as they can. If a boy just developing into manhood comes across one of these quack circulars, he finds there the first information he has had on such things. But unfortunately these quacks describe symptoms and occurrences which may be perfectly natural, and not of necessity important, as something dangerous and alarming. The boy sees his own case described exactly, and is told that these things point to most unhappy results. After the youth's fears are excited, and he sees himself in imagination going to a premature grave as a wreck from debility, he finds to his great comfort the assurance that a certain "Restorer," "Invigorator," or other nostrum will bring him sure relief, and he ends by writing a letter describing his troubles, and gives to some distant quack that confidence for which he unhappily can find no recipient at home. Fortunate is it if this correspondence leads only to the clandestine procuring and furtive taking of some simple tonic under a high-sounding name. Some of these quacks do not let their victims off so readily. There is a set of fiends who, if they can get the name of and any clue to a young man who has, or thinks he has, any trouble that he would not like to have known, set a price upon their silence and threaten, unless their victim pays a certain sum weekly, to expose him to his parents as under treatment for a disease he never thought of. Let every young man avoid all such correspondence. The mental effect of different diseases is very peculiar; one very ill with an affection of the lungs is cheerful and hopeful, and makes light of the most severe ailments, while one with any trouble, however light, of the sexual organs, is timid, apprehensive, and always magnifying the merest trifle into something of dangerous import. These quacks are well aware of the ease with which they can excite the fears of all, but especially of the young and uninformed, and when a boy old enough to know that there are different sexes, gets hold of one of these villainous circulars, the chances are that his peace of mind will be seriously impaired. Boys who read this, take a bit of advice! If one of these circulars falls in your way, don't read it. If you see a book on health advertised to be sent free, don't send for it, indeed don't bother with any medical books whatever. But if you feel worried about some things which you do not understand, go and have a free talk with the physician of your family, if there is no one at home you had rather confide in.

Early Beatrice Peach.—J. McGregore. This peach has now been largely planted, and it is likely that the present season will allow a decision to be made as to its value. The trials in a few localities, when first introduced, were so promising, that a number of large peach growers, who plant solely for profit, set it in large quantities, and this year will be their first full crop.

"What's in a Name?"—We have on a former occasion noted some of the remarkable words the English have introduced into the nomenclature of horticulture; those applied to things, but now they are trying their hand at persons. We thought the extreme had been reached, when one English florist announced himself as "*bouquetist* to Her Majesty," but Pooley & Co. go ahead of this, for they claim to be "Horticultural *Sundriesmen*"—but, Pooley & Co., why don't you follow precedent and preserve the unities, by saying "*sundriesists*"!

Summer-Fallowing for Wheat.—Elder Bros., Darlington, Beaver Co., Penn., write: "The wheat crop looks badly in this county. We think we were fortunate in not sowing oats last spring on our corn stubble, but plowing it in June, and keeping it well cultivated and sowing it with wheat the last days of August. This wheat look well.

Grade Cotswold Merino Sheep.—Elder Brothers, of Penn., write: "Our grade Cotswolds are doing well. We have a flock of 80 yearlings, that will average over 100 lbs. each. We sold 100 lambs last year, at 12 weeks old, averaging 52 lbs. each. Was not that good?"—It is a remarkably good average, but the lambs from these 80 yearling ewes, if bred to a pure Cotswold this fall, will give a still higher average. At least this is our experience.

Sowing Wheat after and before Rain.—"We sowed a field of wheat," writes a correspondent, in Penn, "on the 26th and 28th of last September, the ground being very dry. On the 26th we were driven out of the field by heavy rain. Finished sowing on the 28th. What we sowed after the rain, up to the very drill track, is *better* than what was sown before. What is the reason?"—Perhaps the drill deposited the seed deeper, and covered it better in the moist earth after the rain. Or it may be that the rain only wet the surface soil half an inch or so deep, and the wheat was in dry soil below, but in drilling after the rain, the moist earth disturbed by the drill coulters, fell into the drill row with the seed, and caused it to germimate quickly. Wheat loves a compact soil. It may be that the seed sown after the rain, was brought in closer contact with the soil—that the moist earth adhered more closely to the kernels, or that the drill coulters pressed the moist earth, and made a firmer bed for the seed and young plants.

Grasses for the South.—"Ranger." Orchard Grass, (*Dactylis glomerata*), has been found to succeed very well in the southern states as a hay grass, but it must not be pastured after it has been mown. It should be cut while in its early blossom, or the hay will be inferior in quality. For winter pasture, Kentucky Blue-grass, (*Poa pratensis*), has been found the most desirable, but to have a good bite during winter, it should not be pastured in the summer. We know of no grass that will stand pasturing the year round in the south without irrigation.

Bremen and China Geese.—"R. J. F. W.," Loudoun Co., Va. The Bremen geese are white and large bodied. China geese are very readily distinguished by their long necks, dark gray bodies, the dark stripe down their necks, the bunch on the base of the bill, which is most prominent in the gander, and the very coarse noise which they make.

Information about Patents.—"O. P. W.," Henderson Co., Tenn. We can not give the information desired. It will be the least trouble, when information about the dates of the issue of patents is desired, to write direct to the Commissioner of Patents, Washington, D. C.

Fish Scrap in Ohio.—"J. F.," Brooklyn, Ohio. Farmers near the sea-coast have learned the value of fish scrap, and it is eagerly purchased by them for $25 and over per ton. It would be well for those near the shores of the great lakes where fish are taken in large quantities, and where scrap can be procured for nothing, to know that it possesses most of the properties of guano, although in a less concentrated form, and may be used in the same manner and for the same purposes as guano. By composting the fresh scrap with five times its quantity of stable manure or swamp muck, a most valuable fertilizer may be made, of which two tons would be about equal to 300 lbs. of guano.

Cubic Feet of Hay in a Ton.—"E. M.," Chalybes, Conn. It has been stated several times in the *Agriculturist*, that 500 cubic feet of ordinary timothy and clover hay, packed in a mow under ordinary circumstances, and settled down for three or four months, will make a ton of 2,000 lbs. A mow of such hay, cut when the timothy was in blossom, and with not more than one-third of clover in it, that had remained in a mow 30 feet long, 16 feet wide, 16 feet high, for nine months, when weighed out for sale, was found by us to be a little less than 15 tons. We have baled and weighed several mows and stacks of such hay, with the same result. Clear clover hay is much lighter, and requires nearly 700 cubic feet for a ton. Red-top hay is still lighter than clover, and timothy cut ripe, is heavier than when cut in blossom. We know of no authoritative statement in any publication as to this matter, but we believe our estimate will agree with that of most persons who have had experience in packing hay. We should be glad to hear from those of our readers who have measured and weighed hay of different kinds, as to the bulk of a ton.

Oregon.—Those interested will find a very good new Map, etc., of this state, advertised by Messrs. Gill & Co. This is in the future to be one of the grand states of the Union on the Pacific Coast.

Construction of Mill Dams, by Jas. Leffel & Co., Springfield, Ohio, is a work that will be found very useful to millers and manufacturers, who own water-powers. The principles upon which dams should be constructed, are explained and illustrated by descriptions and engravings of dams now existing in various parts of the country. The authors and publishers are the makers of the well known Leffel turbine wheels, and understand what they write about.

Value of Skimmed Milk.—"H. B. G.," For feed for pigs we should judge skimmed milk to be worth not more than two cents a gallon. We should be glad to have a record of the feeding of a pig upon skimmed milk and meal, with the quantities of each used, and the gain in weight made in 100 days, by a few of our readers, to compare with records of our own.

Sawing Machine.—We have received a letter from a party in Oregon, with a drawing of a sawing machine somewhat similar to that illustrated in the *Agriculturist* of May last, and which was patented in 1872. The party wishes us to notify our readers that to make the machine we described, would give him a claim to a royalty for his patent-right. On the other hand, we wish to say that the machine we described, is an exact drawing of one that was used by the writer of the article describing it, in 1864, and that the method of the swinging shelf, which is one of the novelties claimed in the patent, has been in use for sawing slabs, in the Michigan and Wisconsin saw-mills for many years. This patent therefore confers no right to prevent any person from using the machine described in the May *Agriculturist*.

Patent-rights.—"J. K.," York Co., Penn. It will be quite safe to refuse to pay any claim for any patent-right on an ancient triangular harrow, a slide gate, or any old fashioned churn, until you are satisfied that the claim is just. When any claimant for patent-right appears, whose demand is doubtful, it would be wise for a few neighbors, or the members of a farmer's club, to join in the expense of investigating his claim. United in a farmer's club or association, farmers are strong; alone they are weak, and are often made victims of these patent humbugs. In speaking in this manner, we do not intend to encourage any infringement upon the rights of a holder of a valid patent. Such men are likely to be willing to show the justice of their claims, and to court rather than shun investigation. No trouble need be apprehended from such. There is, however, a class of swindlers, who go about the country pretending to hold patents, who, by threats, extort money from farmers, and the antics of these should be stopped.

Basket Items continued on page 277.

Books Noticed.

Progressive American Architecture, by G. B. Croff.—This new and important work embraces elevations and plans of dwellings of various styles, store fronts, school, bank, and church buildings, offices, arbors, cupolas, cemetery vaults in stone, stables, etc. It gives full exterior and interior details of wainscoting, newels, balusters, and rails, mantels, book cases, fancy cases, counters and shelving for stores, with numerous other useful illustrations, the whole in 97 elaborate plates, making it one of the most valuable works of its kind ever issued. Orange Judd Co., Publishers. Price $10 by mail.

Chemistry of the Farm and Sea, by Dr. J. R. Nichols.—This is a series of familiar talks upon matters of everyday life, which every intelligent person should know, but which, in our system of education, are generally neglected. Orange Judd Co. Price, $1.25.

Soiling of Cattle, by Josiah Quincy.—This work was the first to popularize the important matter of soiling, and though written some years ago, it has maintained its place as the standard work upon the subject. Recently re-issued by the Orange Judd Co. Price, $1.25.

Geyelin's Poultry.—This is the only work which gives any detailed account of keeping poultry on a large scale. Being a translation from the French, all its practices will not be suited to this country, but it contains many useful suggestions which may be profitably adopted here. Orange Judd Co. Price, $1.25.

Rural Affairs. Vol. VII. J. J. Thomas, Editor. Luther Tucker & Son, Albany. This, like the preceding volumes, is made up of the matter contained in Thomas' admirable "Annual Register" for three years. It would be difficult to find anywhere in the same space so great a variety of useful information upon all rural subjects, from laying out a flower garden to building a piggery. Sold by the Orange Judd Company. Price, $1.50 by post.

Fungi, their Nature and Uses, by M. C. Cooke. Edited by the Rev. J. M. Berkely.—This is one of the highly valuable "International Scientific Series," published by D. Appleton & Co., and bears the names of two of the most eminent British Fungologists. It is as popular as a work upon this subject can be made, but in treating of objects so unlike all other plants, as are fungi, new names must be introduced in describing new parts, and any work of this kind must be somewhat technical. This work will prove of great use to those who would know something of the structure of these strange plants, and is a welcome addition to our literature. Price, $1.50.

Trow's City Directory.—This portly volume, which is of little interest to those outside of New York, is of the greatest utility to all who live in or visit the city. The present volume is a wonder of industry and completeness.

Whip and Spur.—Under this title the various war reminiscences of Col. Geo. E. Waring, Jr., which originally appeared in the "Atlantic Monthly," are here collected, and with the addition of some kindred articles form the neatest little volume imaginable. Every lover of the horse who has read "Vix" and "Ruby" will want to read them again in this beautiful form, and those who have not read them have a treat in store. Jas. H. Osgood & Co., Boston. Price $1.25.

Manual of the Cultivation of Grasses and Forage Plants at the South, by C. W. Howard, Kingston, Ga. Many persons assert that grasses cannot be grown at all in the southern states. That they can be grown there, except upon naturally poor or exhausted land, this pamphlet shows and tells how it is done. Every southern farmer should have it.

Lightning Rods, How to Construct Them, by John Phin, C. E.—This little work tells all that is necessary to be known about lightning rods, and by following its directions, any intelligent mechanic or other person can make a perfect lightning protector at much less expense than any of the patented ones, many of which are worse than useless. Sold by Orange Judd Co. Price 50 cents.

Books.—Mere Mention.

The following books are, many of them, of sufficient importance to have more extended notice hereafter. All we can do now, is to acknowledge their receipt.

U. S. Official Postal Guide. Boston, H. O. Houghton & Co. 50 cents.

Agriculture in South Australia, a reprint from the Melbourne *Leader*.

Knight's American Mechanical Dictionary, 3 vols. New York, J. B. Ford & Co.

Milk Analysis, by J. Alfred Wanklyn. N. Y., D. Van Nostrand.

How to Use the Microscope, by John Phin. N. Y. Industrial Publication Co. 75 cts.

Manual of Jurisprudence and Co-operation of the Patrons of Husbandry, by A. B. Smedley, DesMoines, Iowa. Geo. W. Jones. $1.25.

Sex in Industry, Azel Ames, Jr. M.D. Boston, Jas. R. Osgood & Co.

Illustrated Homes. Describing Real Homes and Real People. By E. C. Gardner. The same. Price $2.

Diseases of the Horse, by Robert Chawner. Philadelphia, Porter & Coates.

The Chemistry of Light and Photography, by Dr. Hermann Vogel. N. Y., D. Appleton & Co.

Semi-Tropical California, by Maj. Ben. C. Truman. San Francisco, A. L. Bancroft & Co.

Reports, etc., Received.

Transactions of the Mass. Hort. Society, for 1875, Part I. This is altogether too excellent a Report to be disposed of with a mere acknowledgment, and we hope to say more about it.

The Philosophy of Dairy Manufactures, by Hon. X. A. Willard, and Physiological Considerations Concerning Feeding for Butter and Cheese, by E. Lewis Sturtevant, M. D. Both these papers are from the forthcoming Report of the Secretary of the Conn. Board of Agriculture, and whatever else the Report may contain, these memoirs, by gentlemen so thoroughly competent to handle their subjects, will stamp it as one of exceptional value.

The Rhode Island Society.—(In other words, T. R. I. S. F. T. E. O. D. I.) has published its transactions for 1874, and includes an account of the New England Fair held at Providence last year.

The Germantown, (Pa.), Hort. Society publishes its prospectus for the year in a form of exquisite neatness. Though very young, the society appears to be remarkably strong.

Proceedings of the Florida Fruit-growers' Association held at Palatka, Nov. 1874, and full of interest to all southerners.

Agricultural Education, an address by Prof. T. C. Abbott, Prest. of the Mich. Agricultural College.

Massachusetts Agricultural College, Amherst, Mass., 12th Annual Report.

Bulletin of the Bussey Institution.—This Institution, the Agricultural Department of Harvard University, bids fair to take in this country a place similar to that held by Rothamstead, in England. Besides other papers, this contains the Report of Prof. Sargent, director of the Arnold Arboretum. Reports on the trials of fertilizers by Prof. Storer. The valuable paper on Potato Rot, noticed elsewhere. Analysis of Salt-marsh and Bog-hay, and on the Fodder Value of Apples, both by Prof. Storer, together forming a valuable addition to our literature.

Catalogues of Various Kinds.

Now that the Nursery, Seed, and Flower catalogues have nearly ceased to come, the implement makers of various kinds, and dealers in other articles, present us with their favors.

SEEDS & PLANTS.

Anderson, Hall & Co., Sydney, New South Wales, Australia. A magnificent catalogue which would be a credit to any firm in any part of the world. A notable feature is the seeds of Australian timber trees and native shrubs. When we read over the list of hardy trees and shrubs, "suitable for out-door planting in the neighborhood of Sydney," we almost wish that our lot had fallen where such treasures can be grown.

William Rollisson & Sons, Tooting, London, S. W. England. This catalogue, which came some months ago, was mislaid at the time others were noticed, which we regret, as it is one of the very best issued. We shall be glad if we can make amends for the over-sight, by calling special attention to it, as remarkable for the extent of the collection of Stove, Greenhouse, Hardy, and Bedding-plants it contains, for botanical accuracy, and the fullness of its information as to new plants—a capital catalogue.

FARM MACHINES, IMPLEMENTS, and APPLIANCES.

Deere & Company, Moline, Ill., send several very neat catalogues of their manufactures, among which plows and cultivators are prominent. They make several peculiarly western forms, and some of their Breaking-up Plows look wonderfully efficient; they make also Sulky Plows and Cultivators, which do away with "following the plow," altogether.

W. H. Banks & Co., Chicago, Ill., have a catalogue of "Labor-saving machinery," to look over which is about equal to going to an agricultural fair. Everything from a Post-auger to a Hay-Press.

The Bradley Manufacturing Co., Syracuse, N. Y., have their own specialties, including Harvesters, Mowers, and Hay-rakes, down to garden cultivators, and up to Steam Hammers.

The Furst & Bradley Manufacturing Co., Chicago, Ill., offer still another set of implements, including Gang-plows, Cultivators for walking or riding, and pretty much everything else in the line.

The Blymyer Manufacturing Co., Cincinnati, O. This old concern, which has long been the leading house in Sugar and Sorgo machinery, makes in addition Steam-engines for the farm, Thrashers, Cutters, Sawing-machines, and other farm implements.

Schenck, Sheridan & Moffatt, Chicago, Ill., send an illustrated catalogue of their Torsion Wagon Springs, figured in the *Agriculturist* some months ago, but given more in detail here. Messrs. Schenck & Sheridan are general agents at Fulton, N. Y.

Semple, Berge & Co., St. Louis, Mo., issue a large 8vo. catalogue of 169 pages, showing an immense stock of farming tools, with numerous specialties, prominent among which is the Whitewater Wagon.

WIND-MILLS & WIND-ENGINES.

Eclipse Wind-mill Co., Beloit, Wis. An illustrated catalogue, giving details for pumping water, grinding grain, etc.

C. T. Edwards, Moline, Ill., manufactures the Moline Wind-mill, and gives figures of every part of the same.

The U. S. Wind-Engine and Pump Co., Batavia, Ill., make the Halladay Wind-mill, Pumps, etc. This catalogue would astonish an eastern farmer with the array of names of persons who have this particular wind-mill in use. It gives full directions for building a supply tank, and the names of over 100 Railroads that use the power.

INDUSTRIAL EXHIBITIONS.

Cincinnati Industrial Exposition, will open on Sept. 8th, and continue until Oct. 9th. For the very full premium list and rules, send to Frank Millward, Sec'y.

American Institute, New York, will open its 44th Annual Exhibition, on Sept. 8th. Application for space should be made at once to the Board of Managers.

Inter-State Exposition of Arts and Industries, Chicago, Ill., begins Sept. 8th, and continues four weeks.

MISCELLANEOUS.

Trotting Stock. Jacob Strader, Brook Fields Farm, Hebron, Boone Co., Ky. Giving full pedigrees of a fine lot of horses and mares.

Fruit Plates. D. M Dewey, Rochester, N. Y., has a classified list of plates of fruits, ornamental shrubs and trees.

A. M. Lesley, New York. Zero and other Refrigerators and coolers of various kinds.

Adorn Your Homes

AT A

Nominal Cost.

We have some Splendid Pictures Printed in 18 Oil Colors, Beautiful and Charming.

(The first three [as named below], mounted on heavy Card-Board, ready for framing, or for use without a frame; the fourth mounted on Muslin, being too large for mailing if on Card-Board.)

I—"Up for Repairs."

The sister mending her brother's torn clothes, will be a fine ornament in any house.

II—"Look Out."

A maiden at a cascade in the act of dashing water upon you,—a new and greatly improved edition of this new painting.

III—"Mischief Brewing."

A country boy with a "Jack o' lantern," which he has made out of a pumpkin, and he is telling his little sister of the sport they will have with it by and by, after nightfall.

IV—"The Strawberry Girl,"

One of the most popular pictures brought out in this country or Europe, (size 14 by 20 inches,) of which every home should have a copy.

As long as our supply holds out, we offer a choice of any one of the above four pictures, to every person subscribing for the *American Agriculturist*, who merely sends pay for cost of *mounting, packing*, and *forwarding free* by mail, viz:

For No. I....only 25 cents extra.
For No. II....only 25 cents extra.
For No. III....only 25 cents extra.
For No. IV....only 50 cents extra.
} For mounting, packing, and free delivery.

That is, *nothing* for the pictures, and only 25 or 50 cents extra for cost of mounting, packing, and paying postage or express. *Any one of these pictures is richly worth the cost of many subscriptions.* They are beautifully printed in Oil Colors, and have the appearance, and indeed the value, of Oil Paintings on canvas.

☞ Name your choice when sending in your subscription.

☞ These Pictures are offered to all subscribers now coming in. See "Trial Trip," page 248.

Grain from Kansas.—Mr. J. D. Ronstadt, of Ellsworth, Kan., brought us some fine specimens of rye and wheat which show that in Ellsworth and Bourbon Counties, at least, the grasshoppers have not destroyed all the crops. Mr. R. states that in several places the rye was 7 feet high. The top of these specimens were somewhat damaged, as in changing cars in one of the locust infested towns in Western Mo., the insects made a descent upon it, as it was the only green thing in the neighborhood.

Fruit Jars.—"Mrs. C. W. T." We have not had occasion to purchase any of late; the Cohansey Jar appears to be made on correct principles, and some of our associates, who have used them, give satisfactory reports concerning them.

Cable-Screw Wire and Silver-tipped Shoes.—"W. H. B." There is nothing "mysterious" about these advertisements which have appeared in the columns of the *Agriculturist* for several years, when you understand it. The advertisers are owners of the patents, and make the wire, tips, and machinery for manufacturing these shoes. They advertise in this "mysterious manner" for the benefit of their customers, who are the manufacturers of shoes with the above improvements. The articles are so well known that "W. H. B." will no doubt find them at the first shoe store he comes across.

Obituary.—Moses Quinby.

In place of the usual "Bee Notes," we sadly insert a notice of the death of their author, which took place at his residence at St. Johnsville, N. Y., on May 26th, at the age of 65. When Mr. Quinby sent his article for the *June Agriculturist*, he wrote a private note about another matter, in his usual cheerful style, with no intimation that he was ill, and as we were expecting his contribution for July, a sad one came from his son, announcing his death as above. As to this great work which will be sorrowfully received by bee-keepers throughout the country, we have no particulars beyond those we have given. As an apiarian Mr. Quinby stood among the very first in the country, and he was a leader and often president at their conventions. His work, the "Mysteries of Bee-keeping Explained," is a standard authority, and his frequent contributions, the principal of which were given in the *Agriculturist*, were of real value. In our intercourse with Mr. Q. we were much struck with his simple-heartedness and old-fashioned honesty; he believed that in bee-keeping there was a great source of profit to farmers, who only needed proper instruction to save the vast stores of honey, now yearly allowed to go to waste. Though he made many valuable improvements in hives and their accessories, he never patented them, believing it the duty of every one to contribute to the general welfare. He had a thorough contempt for all quackery, mystery, and shams, and exposed them at every opportunity. The bee-keepers of the country have lost a progressive leader, and his friends will miss from their circle a genial and worthy gentleman.

The Locust at Dinner.

In this number of the *Agriculturist*, p. 261, is a notice of the seventh Report of our esteemed correspondent, Prof. C. V. Riley, as State Entomologist of Missouri, especially with reference to that part of the Report which treats of the locust or grasshopper. In that article it is stated that the author will find but few ready to adopt his suggestion to use the insects as food. A few days after that portion of the paper was made up, we had the pleasure of a visit from Prof. R., who was on his way to Europe for a short vacation, and he informed us that the locust had actually appeared at dinner—"not where he eats, but where he is eaten." Our friend is a very thorough man, and is not one to point out the way, but to lead it, and having advised people to eat hoppers, he at once set the example. A few bushels of hoppers were procured, and placed in charge of one of the best caterers in St. Louis to be served. A number of scientific gentlemen were invited, and a dinner was set forth at which the lively locust formed the sole animal food. Martyrs to science, some may think, but so far from this being the case, it was a feast that the veriest epicure might envy. Prof. R.'s vivid description of it fairly made our mouth water, and half inclined us to wish that certain natural laws did not prevent a visit of these much eating and more eatable *articulata* to the less favored shores of the Atlantic. While our friend cannot say that he "hankers arter" the raw hopper, just cook it, and frogs, terrapins, shrimps, and even the luscious oyster must give precedence to *Caloptenus* which all must admit is a much better table name for the delicacy than hopper or even locust. Those men of science began with Caloptenus soup, so fine that against all of rules of etiquette, they asked for "more"; then came hopper fritters, vastly better than any oyster fritters, and so on with roast, boiled, fried, and stewed of the same, each better than the last, until the climax of the feast was reached in locusts served with honey. This last dish convinced those present that even in Scripture times they knew something about luxurious living. It has often been said that the man who ate the first oyster was one of remarkable courage, though his name is lost to history, but in future times, when locusts shall be sold in our markets by the dozen, and laws are passed for the better preservation of this "valuable game," posterity will remember Riley and his associates as the first Americans who entertained the locust at dinner. All levity aside, why not eat insects? These locusts feed on the fat of the land and why should we not in turn eat them? It is against our prejudices, but when we coolly consider the matter, the locust is really no more repulsive than a shrimp or even an oyster, and that they are really acceptable to the palate these gentlemen enthusiastically declare. To our notion, Prof. Riley and his guests did a really good thing. In portions of Kansas, Nebraska, Missouri, and elsewhere, people were actually suffering with hunger, with all the while untold quantities of food around them, not only food which will sustain life, but of a remarkably palatable kind, and whatever jocular remarks may be made about this hopper dinner, we think that the gentlemen who partook of it did an eminently good work, and one which in future years may prevent much suffering.

American Pomological Society.

A few days ago we had the pleasure of meeting the President of the Society, Col. Marshall P. Wilder, and found him very joyful over the prospects of a fine meeting at Chicago, on the 8th, 9th, and 10th of next September.—The Col. states that the reports from the various states and territories are most encouraging, not only for a great exhibition of fruit, but what is of much more importance, full delegations of members. The western fruit growers are thoroughly alive to the matter, and it is quite time that those in the eastern states were astir. If some of the older and great fruit-growing states do not look out, they will be placed quite in the shade by Nebraska, which, in spite of grasshoppers, promises to out-do herself. The Illinois State Hort. Society, under whose auspices the meeting will be held, is sending out very full explanatory circulars, from which we extract the following:

"The meetings will be held in the M. E. Church, corner of Washington and Clark streets.

"Under the auspices of the Illinois State Horticultural Society, there will, also, be held, in the Inter-State Industrial Exposition building, a national exhibition of the fruits and other horticultural products of North America. Seven thousand square feet of space in the south end of the main floor and gallery of the great Exposition building will be assigned to the various states, territories, and provinces; and in the space assigned to each state, territory, or province, will be arranged the state, county, society or individual collections contributed therefrom. It will be our effort to have every section of the country from Nova Scotia to California, and from Key West to Oregon, suitably represented in a truly continental exhibition of fruits; and to this end we solicit your personal effort and influence to secure a complete representation of your fruit products.

"Upon the same day, and in the same building, the great Inter-State Exposition of the Arts and Industries will begin its four weeks' exhibition. Free tickets, admitting them to all parts of the Exposition during the convention, will be issued to all members of the American Pomological Society and to contributors of fruits for the Exhibition. Railroads will make reduced rates. The Wilder Medal of the American Pomological Society will be awarded for meritorious objects.

"Correspondence relating to the Exhibition should be addressed to the Secretary of the State Society, at Normal, McLean Co., Ill.

"Packages of fruit, with the names of contributors, may be addressed as follows: American Pomological Society, care O. B. Galusha, Chicago, Ill. Shipments should be made in time for arrival by the 6th of September."

Let us add that every fruit grower should become a member of the Society.

A House Costing $4,000.

BY S. B REED, ARCHITECT, CORONA, LONG ISLAND, N. Y.

This plan of a large house, provides ample and conveniently arranged apartments, containing the most requisite of modern improvements, suitable

Fig. 1.—ELEVATION OF FRONT OF HOUSE.

to the requirements of a good sized family. The general outline of the ground plan is nearly square —30 x 36 feet, securing the greatest economy in expense of construction, and embracing a liberal provision for comfort, and a suitable regard for appearances, without sacrificing one for the other. There is always a certain boldness in the exterior, or *elevation*, of a square double front, which no other style affords, expressive of substantial dignity. The two Bay Windows and Porch are united in construction, the Porch having its ends partly sheltered by the projecting Bay Windows, is a pleasant feature. The Second Story, Attic, and Cupola Windows, have circular heads, with heavy dressing. The main Cornice is heavily trussed; the Cupola is large and roomy, and all are proportioned to make this house worthy of almost any situation....The **Cellar** extends under the whole house, with walls of hard brick and mortar 8 inches thick, and 7 feet high, and should extend 1½ inches outside of the frame work of the house, so as to be "flush" with the sheathing. The cross-walls, as shown on the plan, are of the same materials—all such walls should have "heading-courses" every 20 inches, and if in sandy bottom, a suitable bedding should be provided, as described in the June *American Agriculturist*, which will insure a perfectly safe and satisfactory foundation. The AREA walls should be made of hard brick, with stone coping and steps, laid in cement mortar. All Chimneys should be started and laid up with the foundation, and the materials interlaced to bind them together; this will insure additional strength to both foundation and chimney.—We recommend plastering or "laying off" the ceiling of the cellar, with one coat of brown mortar, at a cost of twenty-five dollars, which would be a permanent benefit to the whole house, in preventing the damp cellar air from rising up through the floors and framework of the house. Such air is almost sure to be vitiated by decaying vegetable matter, and is the undoubted source of much disease. Another advantage derived from such plastering, is the shutting out of rats and mice from the frame work of the house, and lastly it affords an opportunity of purifying and sweetening the cellar easily, by (the simplest of all means) a coat of whitewash.... The materials used in the FRAME, are indicated in the estimate appended below. SILLS should be framed for each cross, and outside wall, so as to secure equal bearings, and allow for even shrinkages; and when put in position, they should be bedded in mortar, to prevent any inequalities in the bearings of the frame-work, to strengthen the foundation, and also to effectually shut out cold air from getting between the cellar ceiling and the first floor. All Beams and Studding are placed 16 inches from centers. The first tier of Beams should be framed into the Sills, and their tenons wedged from the outside, to "draw them home." They should also bear upon the wall equally with the sill. All beams having a span of 12 feet and over, should have at least one row of cross bridging of 1¼ x 3 inch "fencing."—The second and third story beams, are notched over the ties, and spiked fast. The Cupola posts rest directly on the center girts, and the principal roof timbers are framed and secured to these posts. In this frame there need be no tendency to self-destruction, so common in large buildings, such as oblique or outward thrusts, or irregularity of bearings, but a perfect "repose" is secured to every piece of timber in the house. The BAY WINDOW framework (see fig. 5), is one inch less in depth than the principal sills of the house, to allow

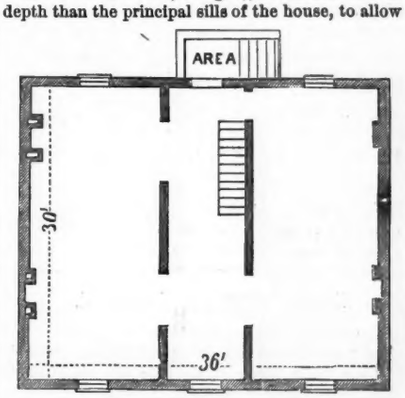


Fig. 2.—PLAN OF CELLAR.

for the thickness of the boarding beneath them, so that the water table when put around the house, may be in line. The distances given on the diagram of the bay frame, may be relied upon as correct. "Bay windows are apt to be cold," is often said, but a sure preventive of such "cold" is easily secured, by filling in between the beams and panels with dry sand, which will make them as tight as any other part of a house....The *character* and *quality* of a house depends greatly upon the material, and manner of **Siding.** In our estimate we have provided for mill-worked sheathing, which should be put on diagonally, and thoroughly nailed to the frame, which will serve the double purpose of securing more warmth and strength, than any "filling in" of brick, and is less expensive. A strip of the same thickness as the sheathing, and two inches wide, should be first nailed to the sill, close down to the masonry, to prevent the air from entering the joints of the sheathing, and following them upwards into the house. Tarred paper is next stretched over the sheathing, when the win-

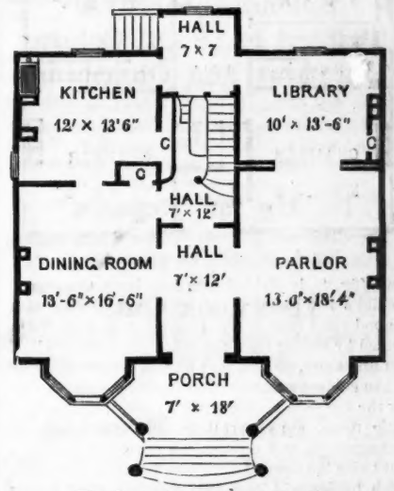


Fig. 3.—PLAN OF FIRST FLOOR.

dow frames, water-table, and corner-boards should be set, and lastly the Novelty-siding put on, and double nailed to each stud. The **Windows** are arranged for each sash to be hung, and all to have blinds. All windows above the first story, have "circular heads," with caps turned of 4-inch timber. The Keys shown on the elevation, are sawed out at the back, so as to fit over the caps, (not cut through them). This is much simpler, more ornamental, and does not impair or affect the solid head....The **Roof** projects twenty seven inches beyond the frame of the building, and is covered with I. C. Charcoal tin, laid and soldered in best manner, on sound hemlock boards. The gutters of the main house, are made as described in the May *American Agriculturist*.....The **First Story** plan, (fig. 3), shows the general division of four rooms and three halls. The Entrance-hall or "Reception-room," is 7 x 12 feet. The Stairway-hall is also 7x12 feet. The Rear-hall is 7x7 feet. These halls are divided from each other by sash doors. The Entrance-hall is divided from the Parlor and Dining-room by large *double* doors. The advantages of dividing the halls in the manner shown, will be obvious to any one when they consider how cold, windy, and cheerless most halls are. By this arrangement all drafts are prevented, either when opening the entrance door, or when passing from one room to another. The inside double doors may be swung open altogether, throwing the principal rooms of the lower floor into one spacious room if occasion should require it for a large company, without altering to any material degree, the temperature of these rooms.—The STAIRWAY hall contains the principal stairs, which are of the easiest "platform" construction, so arranged, that a more private stairway is entirely unnecessary.—The REAR HALL is the common hall of the house, and is easily reached from every part.—The PARLOR is the largest room, has a Bay-Window, Marble Mantel, Fireplace Heater, and is separated from the Library by Sliding Doors. The DINING-ROOM has also a Bay-window, Marble Mantel, and Fireplace Heater, and is intended as the LIVING-ROOM. It is conveniently connected with the Kitchen, Stairway-hall, Entrance-hall, and has a good Pantry (*c*).—The *Kitchen* is separated from the

Dining-room by a single door, and in close proximity to the rear entrance, and cellar stairway doors. It contains one large Closet, Range with elevated oven, warm-closet, and water-back, boiler, sink, and wash-tubs.—The KITCHEN should be wainscoted three feet high, with ⅝x3 inch ceiling-boards. The Clock, and Lamp Shelf should be put between the closet and hall doors, and not over the range. The advantage of having the kitchen on the same floor with the Dining-room, must be apparent to every one....The **Second Story**

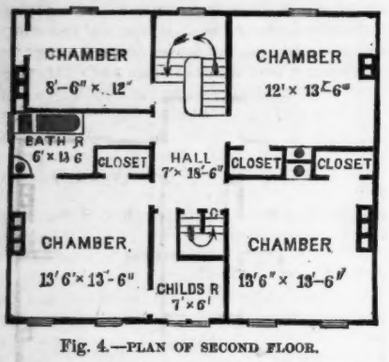


Fig. 4.—PLAN OF SECOND FLOOR.

plan, (fig. 4), is divided into four large Chambers, a child's Bed-room, a Bath-room, five Closets, with a good-sized Hall.—The two front chambers are heated by hot-air from the "fire-place heaters" of the first story, so that they are always comfortable in the coldest weather. For many reasons we prefer the fireplace heaters over any other. They take little room, are cheerful in appearance, easy of management, and economical, requiring attention but twice in twenty-four hours, if hard coal is used. Each heater will keep two ordinary sized rooms comfortable in winter, and are not unsightly in summer. Like any other device for heating, the perfect and satisfactory results depend altogether on the manner of setting them. In no case should such a heater be expected to develop its full power when placed in a fireplace in so close proximity with the brick as to allow the hot air to strike against and be absorbed by them. The heater should be enclosed in a jacket of sheet-iron, having an eight-inch opening, and a collar at the top. Attached to the collar and "built in" the chimney, should be an eight-inch tin pipe, connecting with the register-box in the second story. Above this box this flue should be entirely closed. The smoke-pipe should be four-inch, and pass up through the

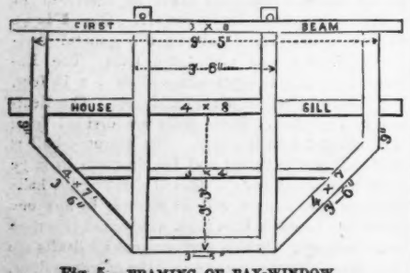


Fig. 5.—FRAMING OF BAY-WINDOW.

eight-inch tin-pipe to the register-box, where an elbow should be put on, turning the smoke into the side flue adjoining. The side flue should have no other side openings.—The BATH ROOM has Bath-tub, Seat Closet, Wash-basin, with cold and hot water faucets. Each chamber to the right of the hall to have wash-basins.—These chambers have marble mantel shelves, resting on plaster trusses, at an expense of six dollars each, which answer the purpose that a twenty-dollar mantel would, and are really more cheerful and appropriate for such rooms....The **Attic** is reached by the enclosed stairway, and is arranged so that two or four Bed-rooms may be "finished off" as required. The Tank is placed on the floor over the Bath-rooms, and is supplied partly from the roof, and partly by the force-pump in the kitchen. All the remaining space in the Attic may be used for storage, etc.....

The **Cupola** room is 7 x 7 feet, reached by a light stairway. The head-room is made to subserve the purpose of a stand or table, so that really very little room is taken away by the stairs....Very few people have any definite idea of the expense of the separate items that are comprehended under the head of **Plumbers' Work,** The following estimate in detail of Plumbing, required in this house, gives facts and figures enough to enable any one to decide just how much plumbing can be done for any given sum, viz:

Sheet Lead, 3½ lbs. to square foot, for Tank, 2x4x6 feet with stop cock	$21.00
Bath Tub, 10 oz., $15; Plated Flange and Thimble Cock, $6; Plated Plug and Chain, $1.50	22.50
Pan Closet, $12.25; Plated Cup and Pull, $1.50; French Bowl, $2.20, Trap, 4 in., $3.75	19.70
3 Wash-basins, $1.70 each; Marble Slabs, $5 each; Plug, Stud, and Chain, $1.50 each; 2 Cocks, Trap, Screw Plug, $3.00 each	36.60
1 Iron Sink, 18x24 inches, $2; 2 Cocks, $3.50; Trap and Screw, $1	6.50
35 gall. Copper Boiler, $27; with Stand, $2	29.00
Force Pump, with brass cylinder	17.00
20 feet 4 in. Iron Soil Pipe, @50c. per foot	10.00
372 lbs. Supply and Circulation Pipe, @8½ c. per lb	31.62
125 lbs. Waste Pipe, @8½c. per lb	10.63
Solder, Tacks, and Charcoal for this job	3.00
5 days' Time, Plumber and Helper, @6 per day	30.00
Total amount of cost	237.55
Ten per cent, added by plumbers in estimating	23.75
Total PLUMBER'S CHARGES for the job	$261.30

To the bill for plumbing we add the cost of:

Range, with Elevated Oven, Warm Closet, Water Back, Set complete	$80.00
Heaters, 2 "Fire Place," with Registers and Heating Pipes, $45 each	$90.00

Cost.—Estimate of cost of building by this plan. It will be noticed that the prices given for Bay Windows, Porch, Lobby, Stairs, Windows, Cupola, and Doors, include materials and labor complete, and that the amount of carpenter's work is for the balance of such labor required on the job:

100 yards Excavation, @ 25c. per yard	$25.00
24,000 Brick, furnished and laid, @ $15 ₱ 1000	360.00
950 yards Plastering, 3 coats, @ 35c. per yard	332.50
6578 feet Timber, @ 2¼c. per foot	148.00
viz. 4 Sills, 4x8 in. x30 ft. long. 70 Beams, 2x8 in. x15 ft. long.	
2 Sills, 4x8 in. x 36 ft. long. 60 Beams, 2x8 in. x22 ft. long.	
10 Posts, 4x7 in. x24 ft. long. 15 Beams, 3x8 in. x22 ft. long.	
Ties, 4x6 in. x 390 ft. long. 4 Hips, 3x8 in. x18 feet long.	
4 Cupola Posts, 4x6 in. x 15 ft. 4 Valleys, 3x8 in. x18 ft. long.	
Plates, 4x6 in. x 132 ft. lg. 14 Rafters, 3x5 in. x17 ft. long.	
100 Joist, 3x4 inches x 13 feet long, @ 22c. each	22.00
400 Wall Strips, 2x4 inches x13 feet long, @ 16c. each	64.00
320 Sheating, ¾x10 inches x13 feet long, @ 25c.	80.00
200 pounds Tarred Paper, @ 5c. per lb	10.00
320 Novelty Siding Boards, 9½ inches, @ 38c. each	121.60
195 Hemlock Roof Boards, @ 22c. each	42.90
240 Tongue and Grooved Flooring @ 35c. each	84.00
168 feet Cornice, 70c. per foot	117.60
17¼ Squares of Tin Roofing, @ $10 per square	175.00
190 feet Gutters and Leaders, 10c. per foot	19.00
Cupola complete, except Tin (included above)	100.00
2 Bay Windows complete, @ $75 each	150.00
1 Porch complete, $75; 1 Lobby complete, $50	125.00
4 Stairs complete, $100; 17 Windows complete, @$15	355.00
5 Cellar Windows, @$6 each	30 00
34 Doors, @ $12 each	408.00
2 Marble Mantels, @$30 each	60.00
4 Marble Shelves, @$6 each	24.00
5 Kegs Nails, @$5 each	25.00
Painting	200.00
Cartage, average one mile	56.40
Shelving, Base, Bell-hanging, etc	73.70
Carpenter's Labor	360.00
Plumbing, as detailed above	261.30
Range, $80; 2 Heaters, @$45, $90	170.00
Total cost of House	$4,000.00

[EDITORIAL REMARKS.—This is a fair estimate of the cost in the vicinity of New York City, for good materials and good workmanship. No calculation is made for fencing, out-buildings, drainage, etc. If the house is erected in or near a city or large village, where there is now, or likely to be in the future, a supply of illuminating gas, the gas-pipes should be put in when erecting a house, as it can be done with little trouble and small expense. We always advise providing for "saving steps," by inserting plenty of bells and speaking tubes. Ten dollars' worth of these will be repaid every year. For full particulars and engravings of these, and other conveniences, see *American Agriculturist* for May and June, 1870.]

Lunch Time in the Field.

The engraving on our first page illustrates what we have often enforced, viz., the advantage of a lunch in the field for working animals. The farmer who leaves his team for half an hour or less, while he goes to the house to refresh himself, should not forget that the animals, which have labored harder than he, also need refreshment. A lunch in a fence corner, from a lunch-box which may be hung upon the fence, is easily given, and will be gratefully received. The time thus spent is not lost, but is more than regained in the alacrity with which the team bends itself to its work again. If this practice were adopted through the planting and harvest season, the working stock might be kept without loss of condition, and would not need feeding up afterwards, to regain the flesh they have been unwisely permitted to lose. In the large cities, small bunches of green rye or fresh green clover are prepared for lunches for the working teams, between meals, when resting. The average condition of the city team is far above that of farmer's teams, and this to a great extent is due to the regularity with which they are fed, and the frequency with which they are watered. Frequent light drinks are much better than copious ones at long intervals, and the maxium, "little but often," will apply to both feeding and watering working stock during the warm weather.

Science Applied to Farming.—VII.

BY PROF. W. O. ATWATER, WESLEYAN UNIVERSITY, *Middletown, Conn.*.

Cotton-Seed Cake—Grain—Beans—Peas—Fodder Corn—Their value and most economical use.

Cotton-Seed Meal.

To the inquiries of Mr. A. B. Fuller, Conn., and others, we answer, the figures in Table **6**, (April No.), refer to the *decorticated* cotton-seed meal, that from which the leathery covering of the seed, or hulls, have been removed in preparing the meal. That mentioned in Table **2**, (March No.), is undecorticated and contains the hulls. The composition of each is here shown:

Table 11.

COTTON-SEED CAKE (MEAL). 100 POUNDS.

	Water.	Ash.	Total Organic Substances.	Crude Fiber.	Digestible Organic Substance.	This digestible Organic Substance consists of: Albuminoids.	Carbohydrates.	Fats or Oils.
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
Decorticated	10.5	7.7	82.2	9.6	55.7	28.8	17.	9.9
Undecorticated	11.5	6.3	82.2	20.8	37.8	18.1	14.1	5.6

Each kind contains 82½ lbs. of organic substance in the 100 lbs., but of this 82 lbs. in the *decorticated* seed meal, over 55 lbs. are digestible, while in the undecorticated, less than 38 lbs. are digestible and nutritive, the hulls in the latter having much indigestible crude fiber, as shown in fourth column. In some analyses, the undecorticated seed meal has yielded as much as 27 per cent of crude fiber. Some feeders think the hulls in the undecorticated meal is injurious to stock; others have used it in large quantities without observing evil results. Whether this be a serious objection or not, the decorticated is nicer, cleaner, and what is of great importance, it contains nearly 50 per cent more of digestible nutritive substance, as shown in fifth column of Table **11**, above.

Feeding Value of Different Foods.

Mr. Buchi, of Nashville, Tenn., a reader of the German *Agriculturist*, who is engaged in dairying, asks: "When corn-meal is worth $2 per 100 lbs., what is the value of 100 lbs. of wheat bran, ship-stuff, cotton-seed meal, oats, or wheat?"—Mr. G. Ferguson, of Port Stanley, Ontario, asks: "When peas, corn, and oats sell at the same price per 100 lbs., which is the cheapest food?"—If Mr. Buchi were a farmer in Germany, instead of Tennessee, he would have one of the Farmers' Pocket Diaries I have mentioned, containing the composition of these and perhaps 200 other kinds of food. Our Tables 2 (in March), and 6 (in April), were translated from those prepared by Dr. Wolff, Director of the Hohenheim Experiment Station, who has studied these questions for 25 years. These tables are the results of thousands of experiments performed at his own and many other Experiment Stations. He is thus able to tell us the absolute and relative amounts of albuminoids, carbo-hydrates, fats, etc., contained, on the average, in different food materials, how much is really digestible in each. He has also calculated the money values. That is to say, after ascertaining a fair price per lb. for the *digestible* albuminoids, carbo-hydrates, etc., he computes the value of these nutritive materials in each 100 lbs. of hay, grain, etc., etc. The values thus

found agree essentially with the German market prices of these products.

Table **12**, below, gives the results of Dr. Wolff's calculations. Note well, that the last column gives only the *relative* value of each, and not the absolute or market value in any one place. Thus, taking *rye* as a basis, if in a certain amount of this, say 30 lbs., the digestible albuminoids, fats, etc., are worth $1.00, then the same weight of corn, (30 lbs.) is worth 94 cents, cotton-seed meal, $1.68, and so of the other articles named.

Table 12.

KINDS OF FODDER.

PERCENTAGE OF DIFFERENT SUBSTANCES, AND RELATIVE VALUE.

	Total Organic Substance.	*Indigestible Organic Substance.*	*Digestible Organic Substance.*	*The digestible organic substance consists of*			*Money worth. Calculated value—Rye $1 for same weight.*
				Albuminoids.	*Carbo-hydrates.*	*Fats.*	
Rye (Grain)	83.9	9.4	74.5	9.9	64.	1.6	$ 1.00
Oats	83.	27.5	55.5	9.	41.8	4.7	.84
Wheat (Grain)	83.9	7.9	76.	11.7	63.1	1.2	1.07
Indian Corn	84.1	13.1	71.	8.4	57.8	4.8	.94
Peas	84.	10.7	73.6	22.	49.9	1.7	1.38
Ship Stuff (St. Louis) *	85.9	18.1	67.8	8.7	57.1	2.	.88
Wheat Bran	81.5	29.6	51.9	10.9	37.6	3.4	.87
Cotton-seed Cake (decor'd)	82.2	26.5	55.7	28.8	17.	9.9	1.68
Meadow Hay (inferior)	80.7	41.9	38.8	3.4	34.9	0.5	.45
Meadow Hay (average)	79.5	32.1	47.4	5.4	41.1	0.9	.59
Meadow Hay (best)	76.3	22.8	53.5	9.2	43.1	1.2	.78
Red Clover Hay (average)	78.7	32.4	46.3	7.	38.1	1.2	.65
Pasture Grass	18.	5.3	12.7	2.4	9.9	0.4	.21
Fodder Corn (green)	16.7	5.8	10.9	0.8	9.9	0.2	.12
Fodder Corn (dry)	80.8	42.4	38.4	1.1	37.	0.3	.34
Wheat Straw (winter)	81.6	47 7	33.9	0.7	32.8	0.4	.29

* Calculated from an Analysis by Prof. F. H. Storer.

By comparing the above figures, our correspondents, and others, may judge of the relative amounts of nutritive ingredients in the different foods named, and of their *general* money value, taken by themselves, without reference to any special object in feeding, or what other materials they are to be mixed with. But, Mr. Buchi, for example, is feeding milch cows. If he feeds for butter chiefly, and has good hay, some of the best farmers in this region would tell him to use, along with the hay, corn-meal, and some oats, and, perhaps, cotton-seed meal. If he sells milk, and wants large quantities without reference to any special quality, he would probably find it profitable to use bran of wheat or rye, with cotton-seed meals and some roots.

Mixing Value of Grain, Bran, Cotton-Seed, etc.

The table, (12), above, shows that there is little of digestible albuminoids in corn-stalks, straw, and inferior hay, (3/4 lb to 3 1/2 lbs. in 100 lbs. of the fodder, or only 1/8 to 1/2 as much as in fine quality hay). As previously explained, (*American Agriculturist*, May, 1875), to use these coarser foods economically, we must supply their lack of nitrogen or albuminoids. It is very evident then, that the decorticated cotton-seed meal or cake, with its 29 per cent of digestible albuminoids, is worth more for mixing, than corn, wheat, oats, or ship stuff, which contain only 8 1/2 to 11 per cent of this. The feeding values of cotton-seed meal, bran, oats, corn, etc., are not exactly proportioned to their content of albuminoids. But that they are approximately so, is abundantly shown by experience, by feeding experiments, and by careful scientific investigation. I hope before long to describe experiments bearing directly on this subject.

Fodder Corn.

This bids fair to be a dry season, and pasturage and hay may be short. One of the best substitutes for these is fodder corn. Practical men differ widely about the value of corn-stalks for fodder. Some attribute their poor success in its use to its "being so watery, and containing so little nutritious substance." That this cannot be wholly correct is shown by comparison with pasture grass in the table above. The corn contains on the average 16.7, and the grass 18 per cent of organic substance, (first column); the remainder in each case being water, with a small quantity of ash, (mineral matters). The proportions of digestible substance are likewise nearly the same, 10.9 and 12.7 per cent, while the amounts of carbo-hydrates and fats are almost identical. The great, and in fact, the only essential difference in the composition of the two is in the nitrogenous substance, (fourth column). The grass contains 2.4 per cent of albuminoids, while the corn contains only 0.8 per cent, just one-third as much. Grass is a natural and economical food for cattle. It furnishes albuminoids and carbo-hydrates in just about the proportions naturally adapted to the wants of the animal. But animals fed with corn-stalks only, would have to consume a very large quantity to obtain a sufficient supply of albuminoids, and these alone are not economical foods. To be made so, other materials rich in nitrogen, as young clover, beans, peas, or oil-cake, should be added. Corn-meal or ship stuff will also serve the same purpose, though less economically as regards food material.

So says our theory, and I find whenever I inquire among our most successful practical men, that this is confirmed by their experience. I hope soon to present some of the results of their experience on this point which have been promised, and will certainly be very interesting.

Ogden Farm Papers.—No. 65.

BY GEORGE E. WARING, JR.,

As I am in no way responsible for making up the *Agriculturist*, and never know what it is to contain until it is actually sent to subscribers, I think it will not be out of place for me to call especial attention to the June number. It is sometimes said that this paper is chiefly valuable as a stepping-stone to educate the public up to the point of desiring something higher. This may be true in so far as it relates to the necessity for treating a great variety of topics, and to the limited space that prevents long disquisitions on abstruse points. Doubtless many are stimulated by what they see in these columns to pursue their investigations, whether scientific or practical, through other channels, where a limited number of readers find long essays on various agricultural subjects. At the same time, although I am in the constant receipt of a number of American and foreign agricultural publications, I cannot now recall a single issue of one of them which contains so much practical information, and so many valuable suggestions, as this single number of the *American Agriculturist* for June, 1875.

To begin with Prof. Atwater's paper, on page 213, we have, in an article only two columns long, a concentration of nearly all that is practically useful in hundreds of pages of scientific dissertation. It is not to be understood by this that he has here described the various experiments by which certain results have been reached, or even alluded to the very interesting and instructive reasoning with which the accounts of these experiments have been accompanied. What he has done has been simply to take the cardinal fact developed by these investigations, strip it of all comment, and set it forth with the support of one of the most striking experiments by which it is demonstrated, in a form of real value to every farmer who owns an acre of grass, and who has the intelligence to understand a plain statement. We all know that a general impression exists that early-cut hay is more valuable than that which has been allowed to stand too long, and the best farmers make it a point, so far as possible, to cut their grass and clover when nearly in full blossom; not one in ten thousand of these understands, except in a very general way, the *reason why* it is better to do so, and many others, if they knew that reason, instead of having only a general impression about it, would at once make their practice conform to the recommendation. No one can read Prof. Atwater's statement intelligently, without regarding the early cutting of hay as not only advisable, but absolutely essential to the most successful hay-making.

The account of Mr. Crozier's experiment and apparent success in crossing the Southdown and the Cotswold is a step in the right direction. It may, of course, well be doubted whether he has yet succeeded in establishing a true and persistent breed; in fact, he evidently doubts it himself. It may even be early to give a name to the new race; and the portrait of one of the animals published, will probably be found in the end to be rather an interesting record of progress than an illustration of an established success. It is only five years since this cross was made, and twenty years would be a short time in which to establish a persistent new race, but if Mr. Crozier pursues his plan resolutely and intelligently, there is reason to hope that he will give to the country a new breed of sheep better adapted for many of our circumstances than any we have yet had.

"Walks and Talks" is this month full of good sense and solid information, and Mr. Lawes' often-adduced experiments are made to serve an unusually good purpose, as showing how constantly the *profit* of a given crop bears relation not only to the extent to which it is manured, but also to the kind of manuring it receives. If any one item can be said to be the keynote to profitable farming, it is just this: a realization of the value of the right kinds of manure applied in the right proportions to certain crops. Concerning the controversy between the author of these papers and Mr. George Geddes, I prefer to say little; as they are both of them men from whom I learn, rather than men between whom I should presume to decide. I have only to say, (since I am referred to in connection with the discussion), that I am still of the opinion that there is a loss of nitrogen, or at least a loss of its most valuable form, constantly going on in the soil, and especially so in a cultivated soil, and that this loss is greater under summer-fallowing than under summer cultivation. In other words: that whenever the soil is plowed or stirred, so that the admission of air is facilitated, it sustains a loss in available nitrogen. That in many soils and in many circumstances this loss is more than compensated for by other effects of the oxygen which causes it, I do not doubt. In the present state of our knowledge on the subject, the question whether the gain more than counterbalances the loss, can only be decided by actual experiments with different soils. Probably summer-fallowing will be profitable in some cases and not so in others, and from the opposite views held by these disputants, both practical observing men, it is not unreasonable to think that it may be advantageous with Mr. Harris and objectionable with Mr. Geddes.

It is not often that we find in the same paper two articles that play into each other's hands, as do those of "Storing Brewers' Grains," and "Curing Green Corn-Fodder"; the principle that operates in both cases being essentially the same. The recommendation with regard to brewers' grains is perhaps of somewhat limited application, but if the storage of corn-fodder in the manner described can be made as successful here as in the French experiments described, there is hardly a limit to its importance. The principle involved is not a new one, and, indeed, I described in these papers some years ago a similar custom prevailing in parts of Germany. Of course, in cold climates it will be necessary to make the protection against frost very complete, although doubtless the slight heat of fermentation will always have some effect in protecting the material. Throughout nearly the whole country there is no crop that can at all compare, when we consider both its value pound for pound, and the enormous yield that may be obtained from an acre, with corn-fodder. Whether the purpose be to make butter, or cheese, or beef, or to keep young stock in thrifty, growing condition, it is at once most palatable and nutritious, and by its aid we may keep a larger stock on a given area of land than would be possible with any other form of food adapted to our climatic conditions. The statement in the article under consideration and in the accounts of the German practice, that fodder kept in this way retains its feeding value throughout the entire winter, seems to be fully sustained, and in my own branch of farming—the making of butter—if there were no other argument to recommend the system, it would be sufficient that it furnishes a succulent green food throughout the winter season, of a sort that will ensure a large yield at reasonable cost, and will maintain almost a summer-coloring of the product of the dairy at a time when, with our ordinary forage, butter is almost as white as tallow. The appliances for storing corn-fodder, as described, are simple and inexpensive, consisting chiefly of a well-cemented, water-tight pit in the ground, well protected from rain and frost. Perhaps it would be well to add to the directions given some provision for protecting the face of the heap

from which the food is being used, from too much exposure to the air. This may be well accomplished by the use of india-rubber blankets, to be closely applied after each taking out.

The article on "The Flushing of Drains" is very important, but a better method for closing the outlet of the silt-basin to be used for flushing, would be to have a ball of india-rubber, or of tightly-wound rags, fitting the mouth of the outlet, attached to a string by which it may be withdrawn at pleasure.—"The Shooting Nuisance" is an article that will appeal to every farmer. I imagine that there is generally too much human nature in the average farmer to allow the insolent conduct alluded to to be very prevalent; but the injury we constantly sustain from the destruction of insect-eating birds is almost incalculably great, and we need something more effective than stringent legislation to prevent it. We need, rather, a realization on the part of all farmers of their own vital interest in the abatement of the nuisance. This given, they will soon find means, if only by the simple application of the law of trespass, to prevent the havoc.

Some of my readers may perhaps say that these matters, having been set fully before them in the paper in question, it was hardly worth while to use my space and their time for a recapitulation; but good as the *Agriculturist* always seems to me, I am convinced, from conversation with many of its readers, that its best points are often passed over; that its great practical value is not always appreciated; and, especially, that the articles in question fully justify this reference.

I have previously described the experience of Mr. John R. Brewer, of Massachusetts, in keeping poultry in connection with sheep, he having found that the fowls kept the sheep and lambs entirely free from ticks. He has just written me a letter, saying that he is still further convinced by his experience and that of his neighbors for the past year, that the plan is a good one, it having been universally found that wherever the sheep and the fowls ran together, there was an entire absence of ticks, and that where fowls had access to one part of a sheep-pen and not to another part where the rest of the flock was kept, the one lot were overrun with the insects, and the other were entirely exempt. Not being a sheep-raiser, I have no opportunity to test this matter for myself, but the suggestion is certainly worthy of the consideration of all who are concerned in the matter.

Reports concerning the use of deep cans seem to be increasing month by month, and, considering the imperfect way in which the experiments are made, the results are often better than I should have expected. It seems to be generally thought that the great point is to set the milk in deep cans, and to keep the cans in a room with a low temperature. This is not sufficient for the full benefit desired. Air, even though kept almost at the temperature of melting ice, will not withdraw the heat of the milk so rapidly as water will, and this rapid withdrawal of heat is the important point. All who propose to experiment in this matter should provide themselves with cans not too large, (8 inches in diameter is better than a larger size), and should float them in cool water, if possible not much above 50°, and certainly below 60°. Even less than 50° would probably be advantageous, but I cannot speak on this point from experience. The possible danger in having the temperature too low would be that the heat would be withdrawn too rapidly, that is, before the volatile odors of the milk, which often affect the taste of the butter, have been driven off. Very sudden cooling, as in passing the milk through a coil of pipe surrounded with ice, has the effect of fixing these volatile matters, to the certain destruction of flavor in the product. Too high a temperature, especially in the summer time, allows the milk to curdle, or to become loppered, or stringy, before all the cream has had time to rise. Much further experimenting will be necessary before the precise point that is best for ordinary milk can be determined, but my own experience (with Jersey cows), which has been constant for the past four years, winter and summer, shows that in my case a perfectly satisfactory result, including the securing of *all* the cream, is attained with a temperature of the water of about 54°.

The question is still asked, with rather surprising frequency, whether it is not an objection to Jersey cows, that they are apt to have a preponderance of bull calves. In looking over the record of a Jersey stock for seven or eight years past, I find that I recorded in all just 100 calves. Of these, 41 were bulls, and 59 were heifers. Since January 1st, this year, 13 calves have been dropped. Of these 11 were heifers, which is an unusually large proportion, and makes the owner feel particularly content.

I have now been breeding Jersey cattle since the spring of 1868. I started out with the belief that certain characteristics might be improved and established, provided the work were carried on with an eye single to them, and provided they were not conflicting. I have therefore applied myself to such qualities as indicate good milking and rich creaming. The questions of the coloring of the hair, and of size, have been disregarded, and even the question of form has been made secondary. What I have sought to attain has been, good escutcheons, or milk-mirrors, combining width, hight, and uniformity; evenly developed, large udders, with a good width and depth behind, and running well forward under the belly; large and evenly-placed teats; full and knotted milk-veins; heavy hind-quarters, and light fore-quarters; thin necks; yellow-lined ears, and small horns, free from much white. The result of my seven years' work shows a greater advance in these directions than I should have dared to hope for within so short a time, and the items of fine heads, thin tails, and light limbs, being characteristics of good dairy animals, have in a good degree followed as accessories. I have a good many ragged hips and sloping rumps remaining, and I have seen many herds which were more beautiful to the eye. In the matter of color, I have left nature to her own sweet will, and have every combination from half-fawn and half-white to solid brown, with black switches. The coloring of the sires and dams seems to have little effect on the coloring of the progeny; solid-colored cows and solid-colored bulls sometimes give us colors with a goodly admixture of white, and the calves of cows having much white, are sometimes of solid color, all of which we regard as unimportant, and as being only what one should expect in breeding to a race which for more than a hundred years has been characterized by a various coloring. I now believe that if our breeding is continued for seven years longer, I shall only make further progress in the same direction—that I shall greatly improve the dairy value of the animals, and not interfere in the less important directions. When I have achieved *perfection* in the end I am now seeking, I shall hope, incidentally, to have refined the back lines somewhat.

I have just paid a visit to Mr. John Carter Brown, of East Greenwich, R. I., and have had the gratification of examining his cow "Young Pansy," which I bought for him for a very high price, on the Island of Jersey, as a yearling in December, 1872. She was a fawn and white calf of very fine appearance, and with a perfect escutcheon. It was by this latter chiefly that I judged her, and it is very satisfactory now to see how well that indication has been supported. She is now four years old, and dropped her third calf in April, and though small, is as magnificent a cow as I ever saw of any breed. Finding that she could not be bought for even a very high price in money, I offered for her the best two animals in my herd, but did not secure her. Her bag, when full, measures 50 inches in circumference; is 8½ inches deep at the rear, and is 16 inches long. Her front teats stand 8 inches apart; hind teats, nearly 6 inches apart; and the teats are 4½ inches apart at the sides, all being large and of good form, and standing squarely out from the even surface of the udder. I wish that she might, in her present condition, make the round of the agricultural fairs of the country, to show what the Jersey breed is capable of.

How to Make a Bolt.

Though bolts are made so cheaply by machinery, that a general supply can be kept on hand, still cases may occur, in which one will have every kind of bolt but the one needed; then the knowledge of how to make one is useful. An old bolt can have a new screw-thread cut upon it, or a new head put on it, in a few minutes. To cut the thread, the bolt is fixed in a vise, and a screw-plate, fig. 1, is used. This is an iron frame, which holds dies of various sizes for different

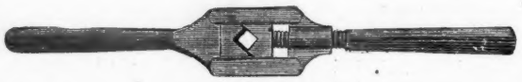
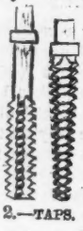


Fig. 1.—SCREW PLATE.

shapes or pitches of the screw-thread. Those chosen must of course correspond to the shape and pitch of the thread of the nut, and taps are made to cut the thread of the nut exactly similar in these points to the dies. The dies are kept in place by a set-screw. In some screw-plates one of the handles serves as a set-screw. The plate is fitted to the end of the bolt, and screwed up tight, a few drops of oil are then put upon the dies and bolt, and the plate is turned as though it was to be screwed on to the bolt. As the dies cut their way into the bolt the set-screw is screwed a little tighter, and the plate is turned back and forth, but every time it is turned a little further on to the bolt more oil being used as the plate is worked down. It must never be worked dry, or free from oil, or the dies will heat, and their temper be lost. The nut is threaded in much the same way. A blank nut, which may be purchased ready made at the stores, is fixed in the vise, and a proper tap is chosen. The taps are made with a slight taper, as shown at fig. 2, so that the thread may be cut deeper, as the tap is screwed downwards. A tap-wrench, fig. 3, is used to turn the tap, and oil must always be used to assist the cutting. As the thread is being cut, the nut should be tried upon the



2.—TAPS.

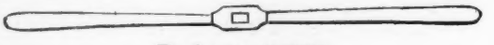


Fig. 3.—TAP WRENCH.

screw, lest it be made too large. The fit should be so snug that a wrench is needed to screw it up. To head a bolt, a small piece of nail-rod is cut off, large enough to make a ring that fits the bolt, and the ends are heated and hammered out, as shown at fig. 4. The ends are then brought to a welding heat, and joined on the horn of the anvil, so as to form a ring. The ring is then, while hot, put on to the end the bolt, fig. 5, and the bolt and ring are

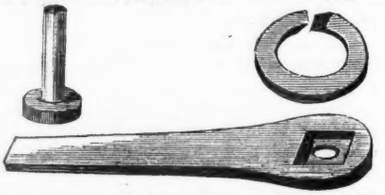
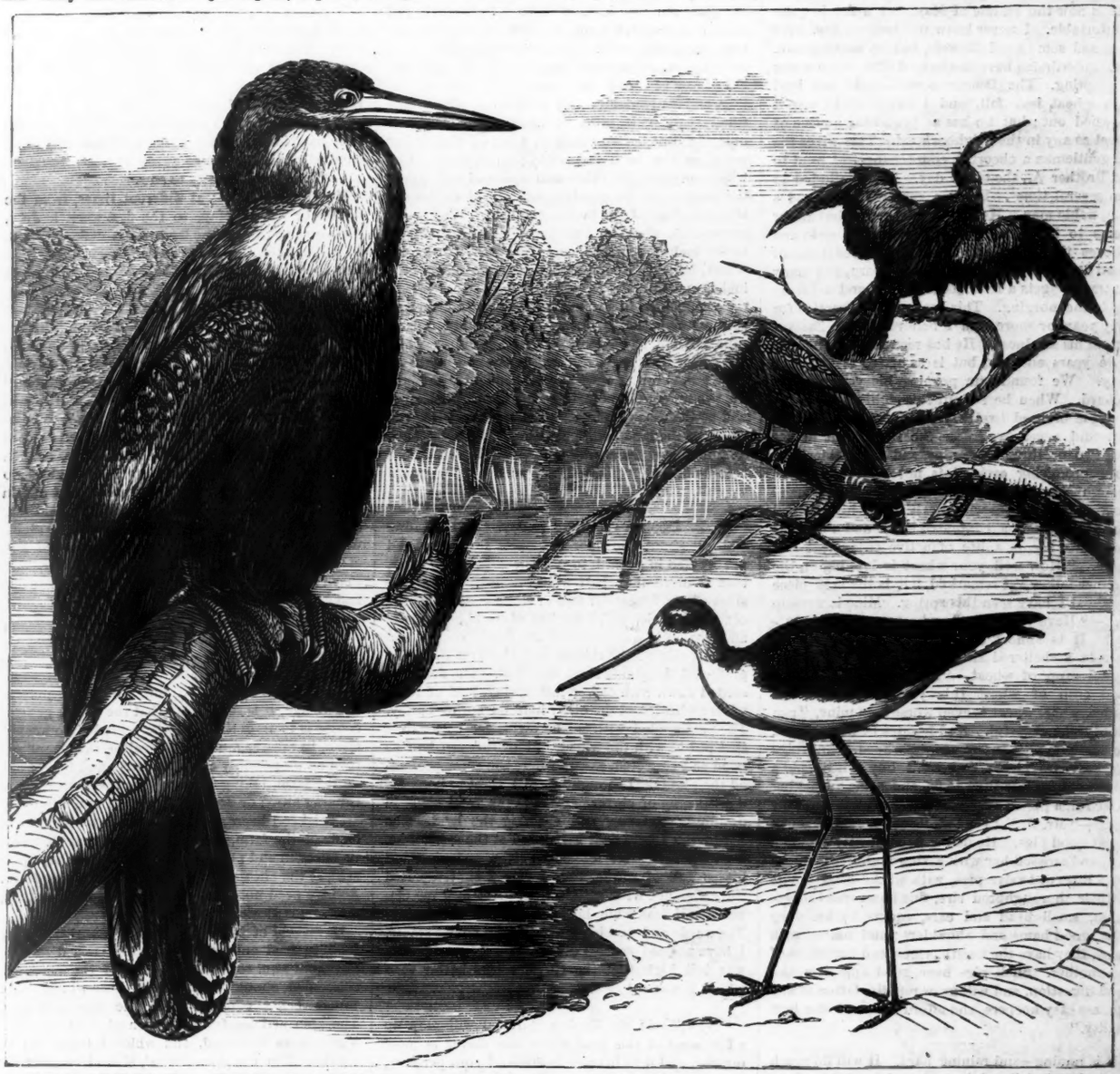


Fig. 5.—BOLT. Fig. 6.—MOLD. Fig. 4.—RING.

then brought to a welding heat, the parts being previously cleaned from scale, and a little powdered borax placed on the joint. They are then welded together, and brought to a proper shape. To shape the head, which ought to be square, a mold is used, fig. 6, in which the bolt is placed, while the head is hammered flat. The corners should be beveled off a little, which gives a good finish to the head. Implements for cutting screws and nuts are made by Goodnow & Wightman, 23 Cornhill, Boston, and may be had at most hardware stores; a set of these, properly cared for, will last a lifetime.

The Stilt.—The Darter, or Water-Turkey.

It often happens that American plants are first figured in European journals, and it is still more frequently the case that our birds and quadrupeds are better known abroad than at home. The resources of the Royal Zoölogical Society allow it to bring together animals from all parts of the world, and many rare American quadrupeds, reptiles, and birds are seen by Londoners at "the Zoo," that in this country can only be seen in their native haunts. The engraving above given is from the London Field; the artist, having the live birds as studies, is able to make a more life-like picture than can be produced from stuffed specimens—the models from which rare birds are often of necessity drawn. The smaller bird in the engraving is the Stilt, (*Himanoptus nigricollis*), which has, among other names, that of "Longshanks," the application of which is sufficiently obvious, though why it should also be called "Lawyer," is not so easy to see. This bird is found from New York southward, and also in the West Indies. It is black above, and its forehead, sides of head and neck, and under parts white; its bill is black, and its legs carmine. The legs of this bird are remarkably long, and, though the bill is long in proportion to the size of the head, it is short compared with the legs, and the neck being also short, the bird can with difficulty reach the ground to feed. But the structure is admirably adapted to the bird's mode of feeding, which is to wade in shallow water and take such insects and snails as it may find upon aquatic plants, or floating upon the surface of the water. The length of the Stilt, from the tip of the bill to the end of the tail, is 13 to 15 inches.—The larger bird is well known to all sportsmen who visit the southern states, especially Florida, as the "Water-Turkey" (*Plotus ahinga*); it is also called the "Darter," in some places it is the "Water-Crow," and, oddly enough, the "Grecian Lady." It is closely related to the cormorants, but more slightly built, and has a very long neck and small head. It is about three feet long; the color is a glossy greenish-black, with a broad gray band on the wings; there are also markings of ash, and in the female there is brown on the head and neck, and fawn on the breast. The bird has the habit of sitting motionless upon branches of trees overhanging the water, and when alarmed, it drops from the perch, head foremost, with its wings close to its sides, with astonishing velocity disappearing beneath the surface, making scarcely a ripple. It swims under water with great rapidity, and goes to a safe distance before re-appearing. Those who have watched the movements of the bird are astonished that so large a body can plunge so quietly. The bird very often swims with the body wholly submerged, the long neck only appearing above the surface, and looking so much like some kind of a water-serpent, that it has been called the "Snake-bird." When swimming upon the surface, they, when alarmed, sink quietly backwards, leaving the head only in sight. They are remarkably quick in all their movements, swimming with great rapidity, and have a strong flight, often going up out of sight. The food of the Darter is fish; it does not dive for its prey, as some birds do, but pursues and captures it under water. The number of fish it consumes must be very large. Audubon gives an account of a tame bird, seven months old, which swallowed in rapid succession nine fishes, each about 7½ inches long, and was accustomed to take at a single meal forty fishes, which were about 3½ inches long each. The Darter is easily domesticated, and it has been suggested that it might be trained to catch fish, in a manner similar to the cormorants in the East. The flesh of the bird is very oily, and of such bad flavor as not to be desirable as food. The nest, built sometimes in trees, but often on low bushes, a few feet above the water, is two feet in diameter, and constructed of sticks, leafy twigs,



THE STILT.—THE DARTER, OR WATER-TURKEY.—*Drawn and Engraved for the American Agriculturist.*

and the long or Spanish moss. The eggs, four in number, are coated with a chalky substance, which, upon being scraped away, shows the light-blue color of the shell beneath.

Walks and Talks on the Farm.—No. 139.

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It is now the middle of May, and a fire is quite comfortable. I never knew the land so dry. We have had some good showers, but no soaking rain. The underdrains have discharged little or no water this spring. The Deacon sowed some low land with wheat last fall, and I expected to see it drowned out; but he has as promising a piece of wheat as any in the neighborhood. This gives the old gentleman a cheerful countenance. I went to see Brother A., the other day. I have alluded to him several times. He is a capital farmer, and a true, noble man. He is always at work, but never seems to be in a hurry. He visits the sick, and relieves the poor, and neglects no religious or social duty. He keeps a bed in his barn, and many "a tramp" gets a free lodging there, and a breakfast in the morning. This has been his practice for forty years or more, and I believe no one has yet abused his kindness. He has seen more than three score years and ten, but is as active as a man of forty. We found him pruning his young apple orchard. When he set out this eight or ten acres of apple orchard twelve years ago, many thought he would never live to see the fruit. But he has had two or three fair crops, and a healthier and more promising orchard is not to be found in western New York. And is'nt he a happy man! His very face shines with health, and his cheerful greeting showed a contented spirit and a mind at ease. His life is a life of active enjoyment and peace. "How well your wheat is looking on the summer-fallow," I remarked, "it is the best piece of wheat I have seen this spring. Mine is wretched."—"Have you seen the wheat on the oat-stubble? It is almost as good."—Both these fields were in a sheltered situation, and he will have a capital crop of wheat.—"A man who has got a good crop of wheat this year," remarked the Squire, whose wheat is even worse than mine, "can afford to be cheerful. And besides he has a lot of the prettiest pigs in the neighborhood. And pigs this year are pigs. You can't buy a little pig a month old for less than $5.00, and some are asking $8.00 for a pig two months old—and will not take less."—"Mr. A.," I replied, "took the right course to get good pigs. He had a good thrifty common sow, and crossed her with a thoroughbred, and he has a litter of twelve pigs, with all the good points of their thoroughbred sire, fine bone, quiet disposition, small head and ears, square backs, deep sides, good hams and shoulders; and united with these, they have the health, vigor, and hardiness of the mother. Such pigs have good appetites and good digestion, and will grow rapidly, fatten at any age, are easy keepers, and afford meat of the best quality."

It is raining—and raining hard. It will do much good; but it is too late to be of much benefit to our winter wheat. Much of this is injured beyond recovery. We shall not feed wheat to our stock next winter. A letter just received from Iowa, says; "Fall wheat entirely winter killed." And I fear the evil is general. I hope we shall have a big corn crop. With the present and prospective high price of pork, a good corn crop would be a national blessing. Owing to the long continued drouth, the soil turns up beautifully, and corn as a rule, will be planted in fine, mellow soil. This is an important matter. If corn gets a good start, the chances are greatly in its favor. Let us cultivate thoroughly, and keep the land clean and mellow between the rows, and then we may hope for a good crop.

It is twenty five years this spring since I put in my first crop of Indian corn on this farm. Our method of planting, cultivating, hoeing, hilling, cutting up, stooking, husking, and shelling, is essentially the same now as then. I question if the Deacon has changed his method in any particular, and the same is true of the Judge, Brother A., and other good old-fashioned farmers. A few of us drill in our corn, and harrow it with a smoothing harrow; but I find a constant tendency to drift back into the old plan. It will take another quarter century, and another generation of farmers, to effect any radical and permanent change. We want a new implement for preparing sod land for corn. We plant our corn in rows 3½ to 4 feet apart, and as soon as the corn is up, we cultivate between the rows again and again. This land between the rows gets thoroughly worked; but how is it under the hill or row of corn? All the stirring and cultivating, and pulverizing, and mellowing, which this small space gets, must be done in the short and hurrying time before planting, when all the spring work on the farm is pressing us at once. And whatever we do for this small space of soil, where the seed is to be planted, must be done for the whole surface of the land in the field. We have to prepare the whole land for corn, with drill rows 42 to 48 inches apart, as completely as we do for wheat, barley, or oats, with drill rows only 7 or 8 inches apart.

Corn delights in a warm, mellow, well pulverized soil. Our naturally loose, warm, sandy upland soils, are apt to be poor, and need manure; while the richer and heavier loams, where we ought to get a good crop, are with great difficulty got into the proper condition for planting corn. And such will be the case so long as we attempt to work the whole of the land before planting. We must have an implement for working the soil where the corn is to be drilled or planted, and let the rest go until we cultivate.

H. E. Hooker was here to-day. I was feeling "blue" about the poor prospects for wheat, and not less so in regard to a 22-acre field of clover, that is more than half winter killed. Along the sides of the fences for two or three rods wide, the clover is as thick and luxuriant as could be desired; and also on the west side of the dead-furrows, and the east side of the ridges, and wherever the snow protected the plants from the wind. The field was seeded down with clover last spring, half of it on winter wheat, and the other half on spring barley. The part seeded with the barley, is far better than that put in with the wheat, but neither are half as good as I expected, except where the snow protected the plants. I thought I had a right to hope for a great crop of clover. I had taken great pains in draining, preparing and cleaning the land. The Squire has a field near by seeded at the same time. Last fall my clover looked so clean and nice, and his so full of weeds, that I fear I contemplated the difference with satisfaction. But now my clover is half dead while his is green and flourishing. The weeds and rubbish protected the young plants. I have noticed several cases where wheat stubble was left high, that the clover seems better than where it was cut close.

"Now," said Mr. Hooker, "if you will plow up a few acres of this land where the clover is most injured, and drill in three bushels of corn per acre, in rows 3 to 3½ feet apart, and cultivate thoroughly as long as you can yet through with a horse, you will not regret the loss of the clover."

Mr. Hooker has raised corn-fodder for years, and with such great satisfaction that he is quite enthusiastic in regard to it. He thinks it the great American fallow crop. Not only does it afford a great yield per acre, but it occupies the land only a short time, and leaves it perfectly clean and in good condition for future crops. He says he can kill even quack grass with a crop of well cultivated fodder corn. Like nearly all others who have tried both plans, he recommends sowing in rows wide enough to admit the free use of the cultivator. He regards frequent cultivation between the rows as the vital point. Sometimes the wind will blow down a piece of such corn, when sown in rows, but if left alone, the crop will still mature, and not be seriously injured.

Mr. Hooker makes the rows 3½ feet apart, with a swivel plow, and then scatters the corn in the row by hand, at the rate of three bushels per acre. "If he had told us how long a row a quart of corn would sow," said the Deacon, "we could tell better whether we were getting it on thick enough."—That is easily figured. With rows 3½ feet apart, a row 4,148 yards long, would be an acre. And so at the rate of 3 bushels per acre, a quart of corn would sow a row 43 yards long. I have sown 4 bushels per acre, and found it none too thick. At this rate a quart of corn would sow, at 3½ feet apart, a row not quite 32½ yards long. Or say half a pint of corn to 8 yards. I find, on trial, that I can fill a half pint measure with two handfuls of oats; but it took six handfuls of Champion of England peas, or five handfuls of corn. I got one of my men to try it, and he filled the half pint with four handfuls of corn. I think about one good handful of corn to two yards of row, would be about the right quantity to sow.

Mr. Hooker sows it at different times, from the middle or last of May, to the first week in July, whenever he can get the land ready. "Sow enough of it," he said, "so that you can use it freely. It has no enemies. Will produce at least 5 tons of good cured fodder per acre. And the whole crop can be used to advantage."—"But do you not have trouble in curing it?"—"Not at all," he replied. "We make it into large stooks in the field, bind it round the top, and let it stay in the field and draw it to the barn in winter as it is wanted."

"With good corn-fodder, mixed with a little mill feed and corn-meal," said Mr. H., "we make nearly as good butter in winter, as when the cows are out at pasture. And last winter I kept sixteen horses on corn-fodder, and never had horses do better. Eight of these horses were turned out in the yard, with a shed to run in, and had nothing but corn-fodder, and they got fat. The other eight, which were worked regularly, had mill-feed and meal mixed with the chopped corn-fodder, and they also kept in high condition. They have not had a particle of hay."

"J. G. C." sends me a newspaper containing an article on "Perfect Manuring," and writes that he wishes "Walks and Talks could give us light on the subject."—I wish so, too. With our present knowledge, it is safe to say that the wisest general course is to drain the land where needed, to keep it clean, to raise as much horse, cattle, sheep, and pig food as we possibly can with profit, and feed it out on the farm, taking care to save the manure from running away, or from leaching. Then, if we buy artificial fertilizers, to use in addition to the manure made on the farm, we should select those that give us nitrogen and phosphoric acid, (and perhaps potash), at the cheapest rates and most available form. And we need not trouble ourselves at out getting other ingredients of plant food.

If, instead of buying artificial manures, we buy food to feed out with the fodder raised on the farm, our aim, so far as the value of the manure is concerned, should be to select those which, other things being equal, furnish the most nitrogen. The able articles from the pen of Prof. Atwater, which have appeared, and which I hope will be continued in the *Agriculturist*, should be carefully studied in this connection. Prof. Atwater shows very conclusively the advantage of growing or buying food rich in nitrogen, (albuminoids), to feed in connection with straw, corn fodder, etc. This has been my aim for years. But I have selected food rich in nitrogen for the sake of getting rich manure. There is no doubt on this point. The richer the food in nitrogen, the richer and more valuable will be the manure. I have tried to grow as much clover and peas as possible, because these foods are rich in nitrogen. I have bought bran, and malt sprouts, for the same reason. Prof. Atwater confirms this view; but he goes far beyond me. And I hope he is right. He seems to think that foods rich in nitrogen are not only more valuable for manure, but that they are also more valuable directly or indirectly for food also. I hope he will give us more information on this point. I have been acting on a different theory, and if Prof. Atwater is right, I could save some hundreds of dollars every year.

What I want to be satisfied about is this: I feed my sheep all the straw and corn fodder they will eat. But it is not rich enough to make them grow, or fatten them as rapidly as I wish. Now, what shall I give in addition? As I understand Prof. A., he says give them food rich in nitrogen. Now, if nitrogen is what I want—and if, by furnishing this, I can get sufficient available carbonaceous matter from straw and corn fodder, then I can feed much more economically than I am now doing. But I have my doubts. Will Prof. Atwater tell me whether it has been really proved by actual experiments, that in such a case as I mention, peas or beans are much more valuable than Indian corn? If nitrogen, and nitrogen alone, is what I want, (the sheep having all the straw and corn-fodder they will eat), then 100 lbs. of beans, peas, or malt sprouts, should be worth nearly as much as 200 lbs. of corn. And a ton of bran would be worth as much as a ton of corn-meal.

We have just been dipping the lambs. We finished shearing last week, and as usual the ticks from the sheared ewes soon got on to the lambs. I only dipped my ewes once last summer. They apparently were so free from ticks that we did not dip them last fall. I suppose this is the reason why we had so many ticks on the young lambs this spring. I took two gallons of soft-soap, about six lbs. of grease, half a lb. of white hellebore, and one quart of crude carbolic acid, and boiled the whole

TROUGH FOR DIPPING SHEEP.

together for half an hour in eight pailfuls, (say 18 gallons), of water, until the grease was all dissolved and thoroughly mixed with the water. To this we added six pailfuls of cold water, or sufficient to reduce the temperature of the dip to about blood-heat. I have a two-inch plank watering-trough, 10 feet long, 2 feet wide, and 16 inches deep, with a partition in the center.

We put the fourteen pailfuls of liquid into the trough, and raised one end of the trough, until the liquid was within a few inches of the top at the other end, and put blocks under to hold it in this position. I have used this trough for dipping lambs and sheep for some years, but have always used more liquid, and never before thought of the plan of lifting up one end of the trough. It worked admirably. We had sixty lambs to dip, many of them nearly as large as common Merino sheep. We dipped the largest first. When we got through, there was only about five pailfuls of the liquid left, but as the lambs were smaller, there was nearly enough to cover them, and by turning them over in the liquid, every part of the body, except the head, was immersed.

One man caught the lambs, and two dipped them, and I stood by and held the lamb by the nose, so as to be sure that none of the liquid got into his mouth or nostrils. It took a little over one hour to dip the sixty lambs. Every tick seemed to be almost instantly killed. An hour afterward we examined several of the lambs. We found hundreds of dead ticks, but not a single live one. I never had a dip so entirely satisfactory and effectual. None of the lambs showed any symptoms of sickness, and the next morning they were frisking about as happy as before the ewes were sheared.—"You have omitted one or two points," said the Deacon. "You put the hind-quarters of the lamb in the deep water, and the head in the shallow water toward the center of the trough. Then, after the lamb had been in the water about 20 seconds, you lifted him out, and let him stand in the upward part of the trough, and there pressed the liquid out of the wool, and let it run back through a hole in the partition. I never saw you have anything so well arranged before, I certainly never saw ticks so easily and so surely killed."—"Good for you, Deacon," said I, "and suppose I tell them what a mistake you made about the quantity of liquid we should need." The Deacon said we should not have half liquid enough, as "this *long wool* will hold a great deal of water."—We found it was precisely the other way. The grade-lambs, and especially those with only one cross of Cotswold blood, had shorter, thicker, and finer wool, and we were all astonished at the great amount of water which the fleeces of these lambs held—on the principle, I suppose, that a fine sponge holds more water than a coarse one. It shows that if a fine-wooled lamb should get soaked through to the skin in a heavy rain, the fleece would not dry so soon, after the rain is over, as a long-wooled lamb.

Yesterday a farmer was driving past towards the city, on a large load of bright, well cured clover hay. I asked him how much he had on, and what he would take for the load. "There is all of twenty-seven hundred," he said.—"It takes a big load to make a ton," I replied, "and I do not think you have much, if any, over a ton, and if you like to drive it into the barn, I will give you $10 for it."—He scowled at me, and drove on toward the city. This was about nine o'clock in the morning. Towards night I saw a load of hay drive up from the city. It was my friend of the morning. He had been in the city all day with that load of clover-hay.—"I could not get a single offer for it," he said, "Timothy sells readily for $15 to $16 per ton, but nobody wants clover."—He had 2,160 pounds in the load, and was glad to take my offer of the morning, not that he wanted money, as he is a well-to-do farmer, but he evidently did not want to have his neighbors see him come back with a load of hay. I could not but feel sympathy for him, and took in the hay. He lives 15 miles from the city, and had spent a long day, with a team, at this busy season, taking a thirty-mile ride, to sell a load of hay for about what it is worth for manure. And we send millions of dollars out of the country every year to buy wool, and all my city friends complain of the high price of meat, and of the difficulty of getting *good* beef, mutton, veal, and lamb.

More Education among Farmers.

It is a fact shown before the British Parliament, that "while the rental of land in Ireland had doubled during the previous hundred years, and that of England tripled, the rental of Scotland had sextupled itself in the same time." This is attributed mainly to the vastly superior school system which Scotland has possessed, and the skill and enterprise it has fostered among the people.—It is a fact that a truck-farmer within a dozen miles of any of our large cities, will get a clean profit of two or three hundred dollars from an acre of land, while the average old-style farmer, hardly gets that amount of profit from his hundred acres or more. These facts are worth studying by the still large class who do not see the use of agricultural papers and teaching, etc., think muscle is the main thing in successful farming. The truck-farmer studies his market, knows what is wanted, learns how to raise it, when and where to sell it, believes in manure, buys it, believes in knowing all about his business, takes his paper, reads and thinks, don't kick at facts because they are printed, keeps his eyes open, and drinks in knowledge from men and books. He keeps learning and succeeds in his business. There is still a large class of our farming population completely stereotyped. Many take no agricultural paper, attend no fairs, no farmer's club, try no experiments, have no faith in improved tools and stock, and are hardly able to tell at the end of the year whether they lose or gain in their business. Success in cultivating the soil is already, and is to be more and more, dependent upon brains. Men who read and think most, plan most wisely and execute most skillfully, will succeed best. We need all the help we can get from the teachings of science, from journals, from fairs and clubs, as well as from the daily experience of the fields.

AN ENGLISH DONKEY SHOW.—An exhibition of working donkeys was held in the Crystal Palace, near London, in May, at which a large number of animals were entered. The donkeys were chiefly owned by "costermongers," or, as we call them, pedlers and junk dealers, and the exhibition was started by the Society for the Prevention of Cruelty to Animals, for the purpose of influencing these persons to a more humane treatment of their donkeys. The result has been to greatly raise these humble animals in the estimation of their owners and the public by showing how much more hardy, docile, industrious, and useful they are than is generally supposed. Some of these diminutive animals draw a ton at a load 20 miles a day for their usual labor; others draw three such loads a day eight miles, "going eight miles an hour without a whip." "Old Tommy," now 24 years old, has drawn three tons of coal daily for the past 16 years, and needs no whip; "Wild Charley" is 21 years old, and is in the old iron business; he has won 21 matches and can trot two miles in 7 minutes. "Old Tommy" is valued at $150, and "Wild Charley" is not for sale. "Young Tommy" has trotted 8 miles in 50 minutes. "Coster Jack" is in the egg and fruit business, and travels 22 miles every day, although only 4 years old. Jack is "fond of children, and eats bread from a plate and drinks tea from a saucer on the table like a rational being"; this accomplishment being set forth by his owner on his entry in the catalogue. The amount of work done by donkeys in England is beyond belief by those who are unacquainted with them, and the value set upon them by their owners is higher than would be supposed. Those mentioned in the catalogue as work animals are valued at from $30 to $250. Certainly, a good donkey is very much better than a poor, lame horse for the work for which these animals are adapted.

SUMMER CARE OF POULTRY.—Lice are the bane of poultry in the summer season. Young chicks and old fowls pine and die miserably in thousands from this cause. Grease is a sure remedy against these vermin. A mixture of one teaspoonful of kerosene oil or crude petroleum, with 4 ounces of fresh lard or sweet oil, should be rubbed on the heads and beneath the wings of the fowls and chicks, either as a cure or preventive. The same should be smeared over the roosting poles, carefully filling all cracks with it. If a setting hen is allowed to become infested, her nest should be changed, the eggs dipped in tepid water and washed, and replaced in a fresh clean nest. There is no better material for nests than fine earth or shavings. Some tansy placed in the nest, will help to keep lice away. The hen may be washed in warm carbolic soap suds, and then allowed to dust herself in fine, dry, clean earth. The new nest should be exactly similar to the old one, and if the change is made when the hen leaves the nest to feed, and near the evening, she will go on to it without hesitation. Cleanliness, dryness, variety of food, and pure water in plenty, will all help to keep poultry in perfect health during the warm weather.

Granaries and Grain Bins.

As a rule it will be found most profitable to thrash grain as soon as it has been harvested. There is a saving of time and labor in drawing the sheaves from the field direct to the thrashing machine, and mowing away the straw in the barn at once. The thrashing may be done in the field, and the straw stacked there, especially now that steam-thrashers are coming into more frequent use. When this plan becomes general, the granary will become as conspicuous a farm-building as the barn

now is. For storing the crops, it will be substituted to a great extent for the barn, and instead of the barn being a storehouse, it will be only a place for

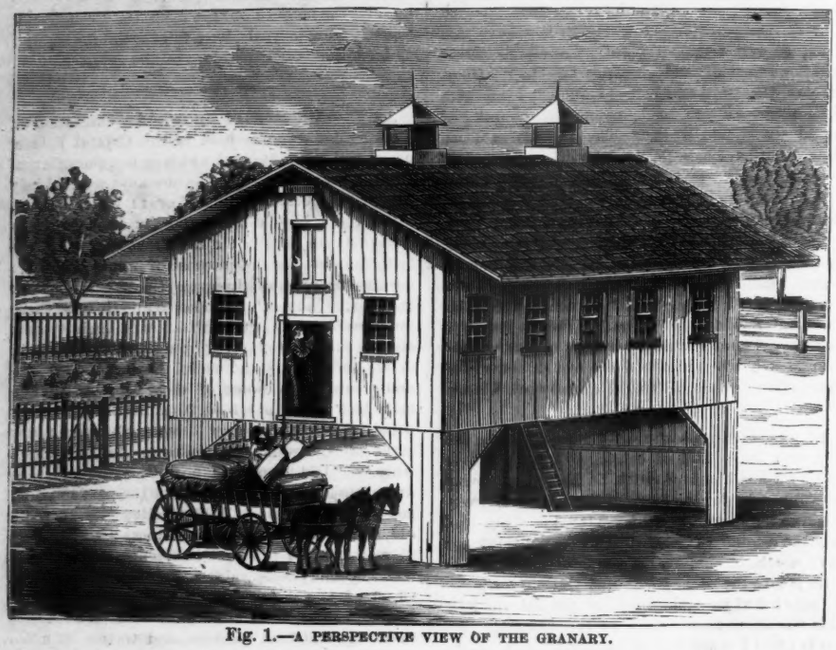


Fig. 1.—A PERSPECTIVE VIEW OF THE GRANARY.

lodging and feeding the stock. Hay and straw may be stacked, and grain kept in a granary, more cheaply than they can be stored in barns, and the stables and stackyard will then replace our present cumbersome and costly combined stables and barns.

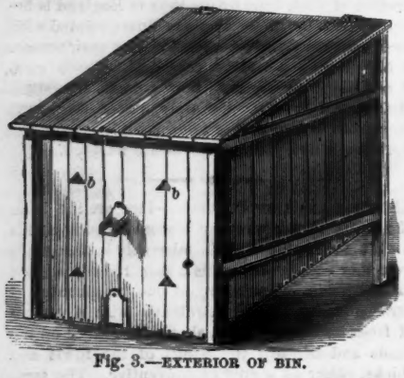


Fig. 3.—EXTERIOR OF BIN.

When grain is thrashed directly from the field, and is stored in bulk, it goes through a process of sweating, and if not turned or ventilated, is liable

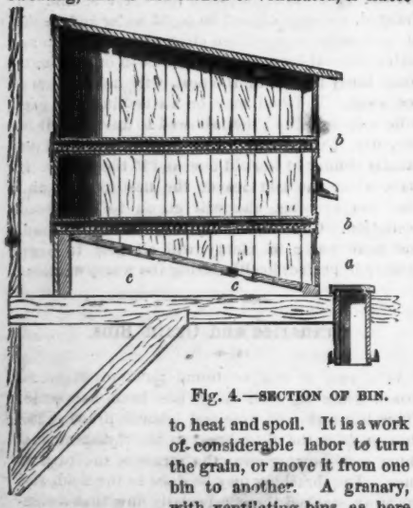


Fig. 4.—SECTION OF BIN.

to heat and spoil. It is a work of considerable labor to turn the grain, or move it from one bin to another. A granary, with ventilating bins, as here illustrated and described, saves this labor. The granary is shown at figure 1. That it may not be accessible to rats and mice, it is made two stories in hight, the lower one is used as an open shed for storage of wagons and implements, or for a workshop. Access to the granary is gained by an open stairway, which, if thought proper, may be hinged at the top, and slung up when not in use. The engraving represents a building 24 feet long, 20 feet wide, and 21 feet high. The shed is 9 feet high, the granary 8 feet, and the loft for the storage of corn is 4 feet to the eaves, and if the roof is one-third pitch, it is 11 feet high at the center. The frame is of heavy timber, to support the weight. The posts may be mortised into sills bedded in concrete or lime mortar, to preserve them below the level of the ground, or the sills may be on stone underpinning. The posts should be 12 inches square, the studs 4×12, and the frame well braced with girts. The floors should be of 1½ inch plank, and be supported by beams of 10×3 timber, placed at most 16 inches apart. The building may be covered with patent siding, which fits closely to the studs, or boards and battens, and is not lined inside, so that there is no hiding place for vermin. There is a wheel-hoist (like that described in the *American Agriculturist* for March, 1873, page 97) in the loft, by which bags of grain are elevated from the wagons by a rope, at the end of which is a loop or sling, made by a piece of wood, with a hole at each end, through which the rope passes, shown at fig. 2. The bag of grain is put in this loop to be hoisted.

The bins are made with a substantial frame of 2×4 timber, mortised together, and boarded with matched inch boards inside of the frame. The bottom is made sloping, and is raised above the floor, so that the floor can be washed or swept when needed. This cleanliness will prevent the harboring of weevils and other vermin. The form of the bins is shown at fig. 3. There is a slide at the bottom, by raising which the grain may be let out on to the floor, and shoveled into bags, or through the spout seen at *a*, in figure 4, into bags in the wagon in the shed below. A spout in the front also enables a portion of the grain to be run into bags without shoveling, and if thought advisable, a spout may be carried through the floor from each of the slide-doors, with very little expense. The spouts are provided with hooks at the bottom, upon which cloth-guides, seen at *a*, *a*, fig. 6, are hung, to direct the grain into the bags. A space is left sufficient to allow a boy to go behind the bins and sweep the floor and walls, and there is a space of at least 4 feet in the middle of the granary between the rows of bins. The bins may be made of any desired size, and separate from each other, or in one continuous bin, divided by movable partitions. Every care should be taken to have no cracks or crevices in the bins, floors, or building, in which weevils can hide, and the windows should be covered with fine wire-gauze, and the ventilators in the roof also covered to prevent the entrance of the grain-moth, (*Tinea granella*), the parent of the grub which glues the grains of wheat, oats, or barley together, to form a nest, and which flies abroad from May to September, as well as the beetle, (*Sitophilus granarius*,) the parent of the well known weevil which eats out the heart of the grain, leaving nothing but the husks. In such a granary as here described, with care in keeping the cracks filled with lime-wash, and in sweeping out dust and rubbish, grain may be kept without any damage whatever from these and other pests.

Fig. 2. SLING.

To provide against injury from heating, the ventilators shown at fig. 5, and at *b*, *b*, figs. 3 and 4, are provided. These are strips of half-inch wood nailed together, so as to form angular troughs about six inches wide. The sides are bored full of small holes, that will not permit the grain to pass through them, and the ends are covered with fine wire-gauze. They are fitted into the bins, running from front to back, with the open side downwards. When the grain is poured into the bins, vacant spaces are left beneath these ventilators, and if it heats, the moist warm air escapes through them. Small pieces of wire-gauze are also fastened over holes in the bottom of the bins, as shown at *c*, *c*, fig. 4, through which cool air enters the bin, as the heated air escapes above. In this way the grain is cooled and aërated. Even buckwheat, which when newly thrashed, heats so readily as to be troublesome in damp warm weather, may be kept in perfect order in such a bin as this, without trouble.

A section through the center of the building given at fig. 6, shows the position of the bins and the passages. A granary 24 feet long, with bins 6 feet wide, and 5 feet deep, will hold about

Fig. 5.—VENTILATOR.

1,200 bushels of grain on the first floor, but a large amount in addition can be stored upon the second floor in heaps or bins. If more room is needed for the grain, a great many filled bags can be piled upon the bins; so that in case of necessity, 2,500 bushels can be stored in a granary of this size.

CLEAN STABLES.—A clean and wholesome stable is a great comfort to a horse during the hot weather. The stifling, poisonous atmosphere in which some farm horses pass the night, after a hard day's

Fig. 6.—SECTION THROUGH THE GRANARY.

work in the field, is productive of unrest and ill-health. Flies abound in such stables, and those savage pests, which are by many mistaken for

house flies, are a different and bloodthirsty species, *Stomoxys calcitrans*; so called from its persecutions, causing horses to kick incessantly. These prevent both the horse and its humane owner from resting with comfort. Frequent washing of the floor with water, clean bedding of pine sawdust or dry earth, and permitting the horses to void their urine before they enter their stable, will go far to keep the animals comfortable. In some stables, when the horses come in from work, and after watering, they are led to the manure pile, where they at once void their urine, and thus keep the stable clean. They are led there again early in the morning, and soon become habituated to the practice. If this was generally done, the stable would be less disagreeable than it now is, and the farm-house would not be pervaded with its odor after every visit to it.

Shingling Gauge.

Our correspondent "L. D. S.," sends a description of a very useful gauge for marking the lines in shingling a roof. Fig. 1 shows the method of using it. At *a*, is a long, straight edged board, an inch thick, three inches wide, and the length

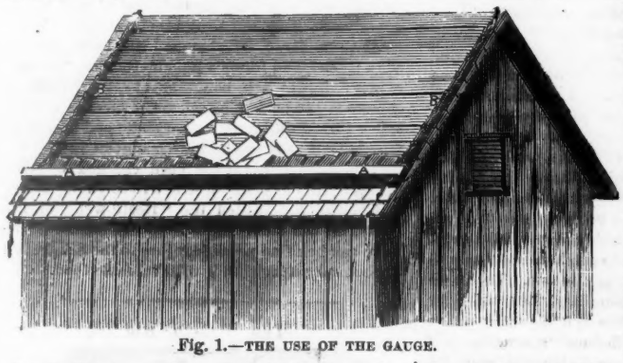


Fig. 1.—THE USE OF THE GAUGE.

of roof, if not over 16 or 18 feet. If of greater length, one-half of it, or a convenient portion of it may be shingled at one time, and the gauge then moved further on to cover the rest. *B, B,* are well oiled hemp cords, with knots tied at intervals of six inches along its entire length. One end of this rope is fastened to a nail or spike driven into the roof near the ridge. In fig. 2 is shown the manner of using the cords. Tapering slots are made in the strip, *A*, through which the cords *B, B,* are inserted and retained in position by the knots, when drawn well into the diminishing point, as shown in the figure. No chalk line needs to be made; the continual jarring of the roof by driving nails, does not cause the loose shingles to slip beyond reach; neither is the nail box liable to slide, as it can always rest securely against the edge of gauge; in laying the shingles they are always kept in line, and do not need to be held down with one hand while a nail is held with the other for the gauge strip, *A*, does it all. When a course is laid, it takes but an instant to move the gauge one knot (or course) higher at each end. The lines, *B, B,* are attached so that the edge of the strip, *A*, will register at the points desired, and the roof is all completely marked off before a shingle is laid.

Fig. 2.—STOP BLOCK.

A Muzzle for Biting Horses.

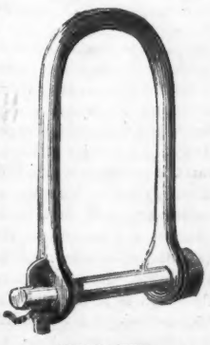
It is not nearly so easy to cure a horse of the habit of biting, as it is to prevent it. This dangerous habit is taught by thoughtless owners or drivers, by teasing the animal when full-grown, or by playing with it when it is a colt. Sometimes it may be cured by giving the horse a smart cut with a switch, across the muzzle, when he attempts it. For incurably, tricky, or vicious horses, there is no remedy but muzzling them. The muzzles may be made of leather, or of strips of light hoop iron. A band of leather is made to encircle the muzzle, and to this are attached straps by which it is buckled to the headstall; the leather or iron strips are riveted with ordinary copper rivets. The strips are about 9 inches long, and are riveted at the bottom, where the ends meet, on to a round piece of leather two or three inches in diameter. The muzzle is shown in the accompanying engraving. When the horse is fed, the muzzle must be removed. This muzzle will meet the difficulty experienced by several of our readers, who have asked for a remedy for this dangerous vice.

MUZZLE.

WASTES. — In many manufacturing establishments a fair profit is made merely by preventing or utilizing wastes. The difference between profit and loss, consists mainly in the exercise of rigid economy, in this way, of both time and material. These matters are scarcely studied on the farm. If a horse has a habit of throwing his food out of the manger, it is supposed that the chickens will pick it out of the manure, but what is left in the morning, after the rats have helped themselves during the night, amounts to but very little, if any. Scores of such little matters abound all over the farm. Mice in the granary and mows, and rats in the crib; lice on the cattle and poultry, and ticks on the sheep; hay cut a little late; weeds suffered to grow a little too long; a little break left until it becomes a costly one; working with dull tools; being a little behind hand in everything; all these, and many more, amount in the aggregate to a loss which, if saved, would be in themselves a fair profit. The general unthrift that accompanies this habit of waste, discourages the children, and they hope for the time when they can escape and do better somewhere else. It is thus in nearly all those cases where we hear that farming, really the best business possible, does not pay, and no man can long carry on a business that is not profitable without discouragement and disgust.

A Clevis Key.

"L. D. S.," Yates Co., N. Y., gives the accompanying sketch of a key for the small clevis used to connect the plow to the whiffletree ring. It is an iron key with a shoulder upon its lower edge, and a small hole in which is inserted a piece of round leather, as is shown in the engraving.—By this plan the clevis is kept from spreading, and is not liable to be lost; it is a most desirable way to fasten all keyed bolts.—By placing the keyed end of the bolt up, the key can be seen at a glance.



CLEVIS KEY.

Locusts, Grasshoppers.—Mr. Riley's Report.

Last autumn the whole country was shocked at learning the destitution caused in Kansas, Nebraska, and other western states, by the visitation of a plague of Locusts or Grasshoppers equal to that of Egypt. Prosperous families were brought to the verge of starvation, and though aid was

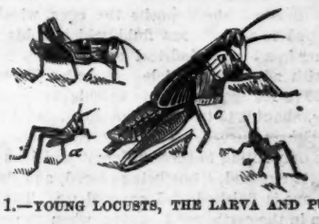


Fig. 1.—YOUNG LOCUSTS, THE LARVA AND PUPA.

given in large sums, there was great distress and suffering. This spring there are accounts of the appearance of these insects from the eggs deposited by the devastating hordes which came last year, and great anxiety is felt as to the immediate future of the localities visited last year, and fears are entertained lest the insect has provided a stock which will migrate still further eastward, and repeat in the Valley of the Mississippi, the devastations of which last year Kansas and Nebraska were the scenes. Last year there was a talk in Missouri of abolishing the office of State Entomologist. It was much regretted that a state which had been so far in advance of all others in this matter, should propose a backward step, but fortunately better counsels prevailed, and we have in the Seventh Report of Prof. C. V. Riley, a very full and interesting history of the Rocky Mountain Locust. The report is not of so much value because it tells how to avoid the visitations of the insect, or how to destroy it when it comes, as these are impossibilities, but it gives all that is known of its habits and its occurrence in former years, suggestions as to remedies, and descriptions of its natural enemies,

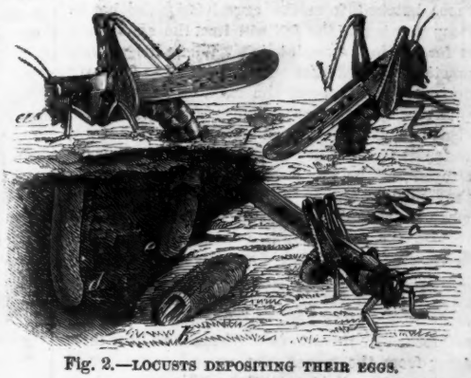


Fig. 2.—LOCUSTS DEPOSITING THEIR EGGS.

all illustrated with engravings and maps of the devastated regions. An unknown enemy is more to be feared than one with whose strength and whose weapons and tactics we are familiar, and the assurance which this report gives to the people of Missouri, that should another invasion take place, it will not, reasoning from the past, extend easterly beyond a certain line, and the further assurance that there is no probability that the insect can permanently establish itself in the state, is worth more to the people of the commonwealth, than the expense of maintaining a score of entomologists, and it is hardly likely that we shall hear any more of abolishing the office filled with such eminent ability by Mr. Riley. The great invasion of last year, is regarded as being in part by insects hatched in their proper home in the mountain valleys of Colorado, and the neighboring territories, and in part by those hatched further east, the progeny of a less extended invasion in 1873. The injury caused this year by locusts, so far as we have seen, is reported as due to those hatched from the eggs deposited last year. We have not space to give even a full synopsis of Mr. Riley's report, but we present a few points of present interest. The eggs are preferably laid in

high, dry, sandy places, in tolerably compact soil, and we here reproduce, in figure 2, Mr. Riley's illustration of the operation of depositing them. The tail end of the female insect *a*, *a*, is furnished with two pairs of horny valves, with which, from their peculiar structure, she is able to drill a hole in a few minutes, deep enough to bury the whole abdomen, the tip of which reaches an inch or more below the surface. When the hole is finished, she deposits the eggs, which are enveloped in a glutinous fluid, which holds them together in a long cylindrical pod, *b*, which is covered with adhering particles of earth. There are from 80 to 100 eggs laid side by side in the mass, each, *c*, about 0.15 to 0.20 inches long, pale yellow, and slightly curved. The engraving shows the female ovipositing in three different positions; *d*, a complete egg-pod, *e*, one being placed, and *f* shows where one is finished and covered up. The eggs remain in the earth until spring, when the young hatch and appear on the surface. Figure 1 shows the young in various stages, *a*, *a*, are newly hatched larvæ, *b*, the full grown larvæ, *c*, the pupa, which in these insects is active, and from which it changes to the perfect insect, with fully developed wings, the whole from the hatching to the perfect state requiring about two months. The belief that those hatched away from their native country will not progress still farther eastward, is founded upon their previous history, and the idea that the insects so produced are not healthy, and do not breed. Several pages of the report are devoted to the natural enemies of the Locust, among which, besides the birds, are numerous insects: a mite attacks its eggs; another mite attaches itself to the insect; a Tachina-fly deposits its egg within the body of the locust, the resulting maggot from which destroys its host; the common Flesh-fly destroys a share of the feeble ones. Before such myriads of locusts, when they descend upon a neighborhood, man is powerless; the advent is so sudden, and the mischief is done with such rapidity, that nothing will prevail against them; but several remedies, or rather preventives are proposed, for use against those hatched from the eggs left by the horde. Deep plowing in the fall will turn the eggs under so far that but few will hatch. Where irrigation is practicable, flooding the ground for a few days will destroy the vitality of the eggs. To destroy the young, wingless locusts, the use of the roller is advised; they may be driven into windrows of straw, which is then set fire to, and the insects thus destroyed; as the insects, when young, cannot fly, they may be driven by beating with brush, and when the advance guard is started in the desired direction, the rest follow; in this manner they are driven into ditches, caught in sacks and killed; they may be killed with a broad wooden shovel, attached to the handle at a proper angle. The young locusts do not like a loose surface, and keeping the soil loose by cultivation will do much to keep them away from the crops. The winged insects avoid smoke, and special trees and small tracts have been saved by keeping up a continuous smudge. Mr. Riley makes one suggestion which he will find few to adopt. The locusts eat up the food of the people, then let the people eat the locusts—he does not put it in that language, but he does suggest that in a time of scarcity and famine, locusts might be used as food. It is well known that a cake made of pounded locusts, or "grasshopper gingerbread," as one traveler calls it, is a favorite food with the Digger Indians, and whites might do much worse than try it. Mr. Riley's Report is exceedingly creditable to himself and the state, and we hope provision has been made that so valuable a document may be procured by all who desire to possess it.

SHORT-HORNS FOR THE DAIRY.—The very common idea that Short-horn cows are useless for the dairy is a wrong one. The breeding of Short-horns for beef has, to a great extent, caused their value for the dairy to be lost sight of. Originally these were the best dairy cows, and the first Duchess gave during the summer, while on pasture only, 14 quarts of milk at each milking, and each milking yielded 21 ounces of butter. The value of her produce was then two guineas, or $10.50 a week. Chas. Collings' cows were heavy milkers, one gave 26½ quarts at a milking; another cow gave 19½ quarts at one milking, and a cow by the "Masterman bull" gave 36 quarts of milk a day. Mr. Wastell, one of the original Short-horn breeders, had a cow that gave 36 quarts of milk a day, and 24 lbs. of butter a week. These cases were all reported by the well known Mr. Bates, the breeder of the Duchesses. One of the heaviest milkers now living, is a cross-bred Short-horn and Ayrshire cow, which has given 100 lbs. of milk per day. It is an injustice to this valuable breed that their milking properties should be lost sight of in the endeavor to produce a symmetrical carcass, which may add a little to their value as beef-producers only.

The Buffalo Gnat.

The papers have contained accounts of serious losses of mules and horses in some of the western states from the attacks of the Buffalo Gnat. Some of these stories have probably been exaggerated, but the injury has no doubt been considerable, and sufficient to cause alarm among owners of animals, and to awaken a desire to know something of the insect and its ways. Those who have visited densely wooded regions on surveys and explorations, or have gone to the Adirondacs, the backwoods of Maine, or any other wilderness countries, for hunting or fishing, have no doubt made the acquaintance of the "black fly," a very small insect, which comes in clouds, and each individual as pernicious as a dozen mosquitos in one. The little fellow draws blood every time it strikes, and it, or some other one, strikes so often, that the writer has actually had the blood trickle down his face from their numerous wounds. This is *Simulum molestum*, of which fig. 1 is a much magnified representation, and it has been stated that the Buffalo Gnat is the same insect; but our correspondent, Mr. C. V. Riley, State Entomologist of Missouri, informs us that there are several closely related species, which are popularly called Buffalo Gnat, and that the insect so called in Missouri and Texas, is a species of Simulum as yet undescribed, but the points in which it differs from the common Black-fly are such as would be noticed by an entomologist only, and so far as their habits and changes are concerned, they may be regarded as essentially the same. It has been suggested that the Buffalo Gnat is the same as the "Tsetze," the fly which is so destructive to cattle in Africa, but that belongs to a quite different genus. In Hungary a similar fly is known as the "Gnat of Columbatz," as it has been especially troublesome near a castle of that name; the animals are attacked by them in such numbers, penetrating every orifice of the body, and even entering the lungs, that they are generally killed by the severity of the inflammation thus caused. The European fly is especially abundant in some particular years, and apparently the one in this country comes in great numbers only periodically. As to preventing their attacks, it is probable nothing can be done, other than to shut up the animals where the insects can not reach them; while we have seen no detailed accounts of the matter, we suppose that the insect is not noticed until the mischief is done. These insects pass their larval state in the water, and are then as unlike the perfect insect, as can be imagined. The accompanying engraving, (fig. 2,) from the "American Entomologist" of 1869, (since then suspended to the regret of all naturalists,) shows the insect in its early life. The larva, *a*, is about a third of an inch (0.35) long, and the other figures are enlarged in proportion; at its upper end, near the mouth, it has two singular fan-shaped appendages, which, it is supposed, are of service in procuring food. Figures *b*, *c*, and *d*, give the back, front, and side view of the pupa. The larva (*a*) is often found in an upright position, attached to stones and other objects by its lower end; it is capable of swimming by means of a jerking motion, and of walking by doubling itself up and straightening again. When ready to undergo its changes, the larva spins a silky thread, and forms a pouch attached to a leaf or stone, in which it hangs as at *c*, until ready to emerge as the perfect insect. The larva is able to spin a thread during its active state, and uses it to attach itself to plants and other objects in the water; on this account it has been charged by some fish culturists as being destructive to young trout, and it has been called the "Death-web" of the trout; on the other hand it is claimed that the larva can be of no possible injury to the fish, but on the contrary, furnishes it with valuable food.

Fig. 1.—GNAT.

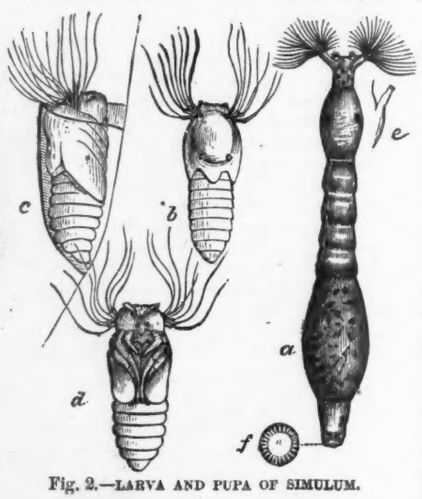


Fig. 2.—LARVA AND PUPA OF SIMULUM.

The Potato Rot.

The use of a Cryptogamic Professor at the Bussey Institution, (the Agricultural Department of Harvard), begins to appear. No. 15 of its Bulletin is a clear, straight-forward, and readable essay on the Potato Rot, and the fungus that causes it, to which is added some account of the Lettuce Mold. A few wood-cuts exhibit the character and appearance of these two pests. The article describes their mode of development and action, how they extend from plant to plant, and the conditions and circumstances under which they become formidable. The little fungus which produces potato-rot, is known to botanists under the name of *Peronospora infestans*; but as only a sexual fruit is known, (though that produces two kinds of spores), the true nature and name of fungus is not completely made out, because, as Dr. Farlow says, the oöspores (*i. e.*, the spores resulting from sexual propagation), have never been discovered. As to this, it may be said that if Prof. Farlow had not been out of the country at the time, he might have known that these long-sought oöspores had been discovered in potatoes at Washington, a good while ago, and were elaborately described and figured in one of the Reports issued by the Agricultural Department of the United States. We believe, however, that this renowned document did come to hand in the botanical laboratory of Strassburg University, while Dr. Farlow was a pupil there, and was received with ejaculations of wonder, and outbursts of merriment. In the present paper the subject is passed over with decorous silence.

As these oöspores, or true seed, of the potato fungus, have eluded all search in the affected plants or tubers, and as we have now gained the right to infer that all such fungi, no less than higher organized plants, do have some mode of sexual propagation; it is a natural conjecture that the latter takes place only when the fungus lives upon some different plant, in a manner analogous to rust in grain, which in one state lives and fructifies upon the grain, in another upon the Barberry, the two kinds of fructification being widely different. It is suspected that clover may be the alter-

nate host in the present case, and that the potato-rot may be propagated by means of oöspores which hibernate in this and other fodder-plants, and which reach the potatoes by way of the animal manure. At present this is a mere suspicion, one which suggests investigation. But the recent announcement that it is now known to be so, through the discoveries of Professor De Barry, is pronounced to be wholly unfounded. It does seem, however, that, in England, "there is a tendency for the rot to prove particularly bad when potatoes follow clover."—So that it is worth while to follow up the clue, both by investigation and observation. In order that farmers may do their part of the latter, Prof. Farlow propounds to them the following questions for this year's consideration:

1. What is the nature of the soil on which you have planted potatoes this year?
2. What crop preceded the potatoes?
3. What was the preparation of the land, and what manures were used?
4. What variety of potatoes were planted, and were the varieties early or late?
5. What was the date of planting?
6. What was the exact date of the appearance of the rot?
7. What varieties seemed to suffer least from the disease?
8. What proportion of the crop was destroyed?
9. On first noticing the rot, what was done to save the tubers, and with what result?
10. Following a clover-crop, how are potatoes affected by the rot, particularly badly or not? After potatoes does clover do well? Have you observed any fungus upon clover?
11. Following a wheat, oat, or rye crop, how are potatoes affected by the rot? Where wheat, oats, or rye follow potatoes, what is the result?

If the potato-plant actually does not produce oöspores in this country and in Europe, it is much more likely to die out or exhaust itself, or to be kept down by unfavorable seasons. The oöspores have greater tenacity of life under various conditions than the other spores. To show that some benefit may come from knowing where the oöspores of a fungus are produced, the case of the lettuce-mold, as investigated by Dr. Farlow, is in point. The lettuce-mold is a true *Peronospora*, *P. gangliformis*. Its oöspores are found to be particularly abundant in Groundsel, (*Senecio vulgaris*), a weed of common occurrence in lettuce beds. Accordingly the groundsel should be weeded out with great care.

As to what is to be done about potato-rot, all the suggestions that Prof. Farlow offers, in the present state of our knowledge, may be shortly given.

"From what we have seen about the cause of the rot and the knowledge which we possess of the habits of the *Peronospora*, it is evident that there is no such thing as a specific against it. Whatever completely destroys the fungus, will also kill the potato itself. The object is to prevent as much harm as possible from being done to the plants, in which the mycelium already exists, and to prevent the spread of the disease to healthy plants. If we could control the amount of moisture in the air about the time when the disease is likely to appear, say from the middle of July until the first of September, the mycelium would not increase to any extent to cause practically any harm. That we, unfortunately, cannot do; and all that remains is to drain the land thoroughly, or to plant in a dry soil. Since the disease does not appear until about the first of August, the early potatoes should be less likely to rot than late ones. Exactly what variety a farmer should plant, is not a question to be decided by a botanist; but it should, at any rate, be a vigorous grower, and ripen as early as possible, size and marketable qualities being equal. Certain varieties seem to resist the disease better than others, but as yet we know of none which may not be attacked. The precautions to be taken to prevent the extension of the disease, will be more definitely known when the plant in which the oöspores are produced has been discovered." We hope that some of the readers of the *Agriculturist* will consider the above questions, and at the proper time forward their replies to Prof. W. G. Farlow, Bussey Institution, Jamaica Plain, Mass.

A Rustic Pot Cover.

It often happens that one would like to bring a plant in flower from the greenhouse, to decorate the sitting room or dining room, or even to promote a plant from the window to the table. There is nothing so well suited for the growth of plants, as a common flower-pot, but however clean it may be, a pot is an unsightly object, and its rude appearance much detracts from the beauty of the plant it holds. Considerable ingenuity has been expended in devising covers of various kinds. Handsome porcelain or other vases, within which the pot may be placed, can only be provided by the wealthy; paper covers have been offered, but the dampness of the pot soon makes them limp and useless; the expanding cover, made of narrow strips of colored wood, which cross one another like a lattice work, answers a tolerable purpose, but still the pot shows through the openings more than is desirable. Messrs. Peck & Skilton, of Westfield, Conn., whose remarkably tasteful rustic work we have before noticed, seem to be on the right track, and make a pot cover which answers admirably for some uses. The engraving upon the next page gives a representation of the affair. If they will follow out the idea, and make covers of much lighter material, both in the body and in ornamentation, we think that they will meet a want that all cultivators of house-plants must have felt.

Culture of Cape Heaths.

BY PETER HENDERSON.

In but few cases has there been in this country an attempt at growing a collection of those beautiful plants, the Cape Heaths. In all my experience I have only known of three cases, besides the one here referred to, where success has attended the attempt. But the desire to possess and cultivate what is novel and rare in greenhouse and hot-house plants is increasing. The visits of our people to Europe are now quite frequent, and a desire to do what is done abroad results not only in the importation of novelties, but often in importing the skilled labor necessary to cultivate them. We have already many fine collections of rare Orchids, and other plants of the tropics, which are rather more easy of culture in our climate than in that of Britain, but the high temperature and dry air of our July and August have to be fought against if we would make Heath culture in our latitude a success. That this can be done, and has been done, a visit several weeks ago to the country seat of Mrs. John J. Mitchell, of Tarrytown, N. Y., most satisfactorily proved. The greenhouse and hot-houses form a curvilinear building of about 100 feet in length, with an octagon glass structure at each end of some 60 feet in diameter; in one of these octagon greenhouses is a collection of about 80 distinct species and varieties of Cape Heaths, and some 20 of Epacris. The gardener in charge is Mr. Wm. Monroe, who for seventeen years was foreman to Methren & Sons, nurserymen, of Edinburgh, and brings to the work his experience in a section noted for successful Heath culture. Mr. Monroe regards the culture of the Heath as simpler here than in Europe, except in our hot summer months, when every means must be used to lower the temperature and at the same time increase the moisture of the atmosphere in dry days. To do this, the greenhouse must be so constructed that a current of air can be admitted at the lowest point of the front walls; that is, if the upright or front walls are 4 feet in hight, one foot of the wall close to the ground must be open for ventilation, and at the highest point of the roof of the greenhouse a width of at least two feet should be made movable, to allow the escape of heated air. Besides this, to still further lower the temperature, a muslin shading is placed outside, to prevent the sun's rays passing through the glass. I emphasise "*outside*," for every now and then we see shading placed upon the *inside*, which is nearly useless, if it is desired to lower the temperature of the house. In addition to shading, the paths are splashed with water, which both gives the necessary moist condition of the atmosphere, and lowers the temperature. We find that by judicious ventilation, shading, and wetting the floor of a greenhouse in the hot days of summer, we can reduce the temperature 10 degrees below that of the outside atmosphere in the shade. By these means, Mr. Monroe gets his Heath house tempered down, so that his plants are brought through the firey ordeal of our dog-days unscathed. As soon as the cool September days begin, there is no further trouble; the Heath is then of as easy culture as an Azalea or a Camellia, and requires a treatment almost identical with them, so far as temperature is concerned. The soil necessary for the Heath and Epacris is peat and silver sand, or finely-pulverized leaf-mold with sand might do where peat cannot be procured, but a soil of that soft character is indispensable, as the roots of these plants are as fine as hairs, and must have a soft medium to grow in. The specimens grown by Mr. Monroe were, some of them, 18 inches in diameter, and in the most vigorous health, and these too of kinds considered difficult to manage even in England. For example, here were fine specimens of *Erica retorta major*, *E. Hartnelli*, *E. Maskiana*, *E. eximia*, *E. Masoni*, and other rare species of which *E. tricolor* is the type, which to grow well is in Scotland or England considered to be a triumph of horticultural skill, and until now we believe has never before been so well done here.

Of the softer and easier-growing kinds, such as *E. ventricosa*, *E. hyemalis*, *E. Wilmorei*, etc., they were here by the hundred, "growing like weeds." At the time of my visit many of the varieties were in bloom, and were well worthy of the extra culture required, not only from their great beauty, but from their rarity and novelty—qualities that may be looked for in vain in the collections of plants throughout the country. Is it not this rarity that gives the charm? No matter how well the chromo imitates the painting, or the plaster cast resembles the sculptured marble, the ease with which they may be produced makes them cheap, and cheapness makes them common, and the charm of rarity is gone. It is said that the Duke of Devonshire once became the possessor of a plant of great value, and on discovering that a duplicate of it existed, he purchased it at a great price and destroyed it, in order to have the pleasure of saying that he owned the only plant of its kind in England. Much as some may be disposed to deprecate the selfish exclusiveness that prompts such an act, it would be useless to deny that the same feeling, though in a less marked degree, prompts many others besides the Duke, and yet the results tend to elevating the taste for the higher achievements of horticulture. Mr. Monroe inteuds to show a collection of Heaths at the Centennial Exhibition, and he may do this with the assurance that no other collection of flora's treasures there will surpass it in interest.

Slitting down the Bark of Fruit Trees in Early Summer.

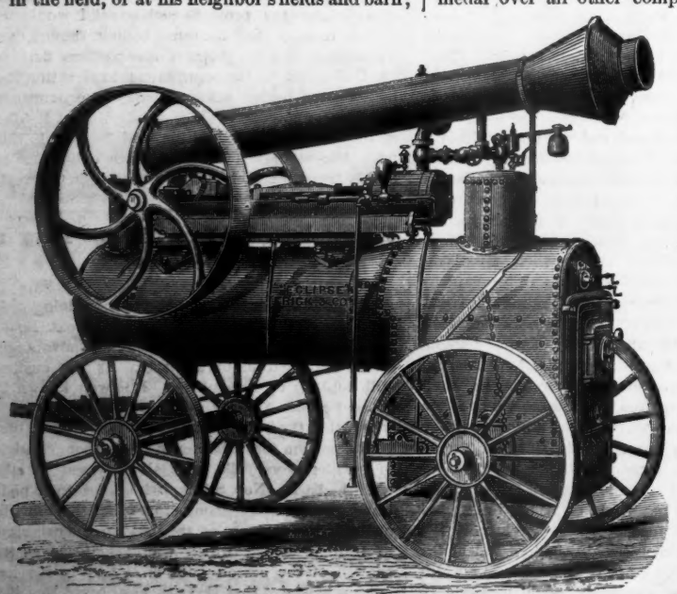
The writer remembers his father's doing this when he was a boy. Sachs, in his Text Book, speaks of this as having been long ago advantageously employed in horticulture. Is the custom still kept up by orchardists?—It is well known to those familiar with the microscopical structure of wood, that the outer part of each year's layer, that is, the portion formed later in the season, consists of smaller wood-cells, and all flattened parallel with the bark. Now Sachs, (who likes to explain things mechanically), conjectures that this must be owing to the pressure of the bark on the cambium or forming wood, which would increase as the growth of the season goes on. And in his last edition he states that DeVries has proved that it is so by experiment. So that this old practice ought to be useful, by enabling the trunk of a growing fruit-tree to produce a greater amount of vigorous wood than it otherwise would do; and no harm is done when the slit heals promptly. A. G.

Mechanical Powers for the Farm or Workshop.

It is an accepted principle in the use of powers that one should never employ a man when he can use a horse, and never use a horse when the work can be done by either wind, water, or steam. For farm or rural labor the three powers last named may be very extensively applied with profit. Wind and water are

FECK & SKILTON'S POT-COVER.—(*See preceding page.*)

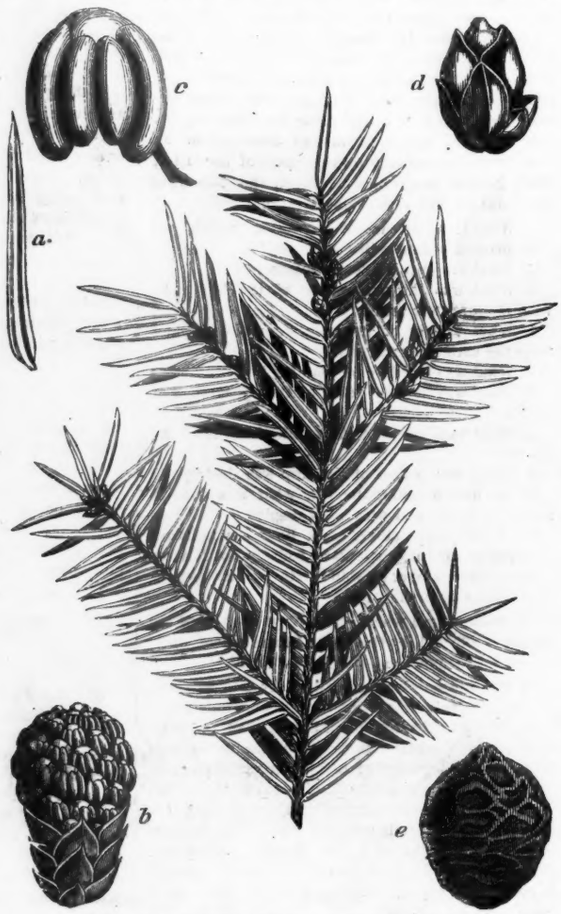
only applicable for stationary purposes. They are employed through the medium of machines, cheap in their construction and their use, and in many places can be made available where steam might be objectionable. But steam may be applied everywhere, and in many cases may with advantage displace the cheaper powers of wind and water. It is a portable power, and in this lies its greatest usefulness to the farmer. With a steam-engine he can pump water and force it to any part of the farm for irrigation or for his stock; he can thrash at the barn or in the field, or at his neighbor's fields and barn; he can saw fuel or lumber at home or in the woods; he can press hay, and gin, or pack cotton, or grind his own or his neighbor's feed, and do whatever work may be desired at home or away from it, and thus make it profitable for himself and convenient for his neighbors. The saving of time in doing his own work will make it possible for him to spare time to do work for others who may wish to hire his engine, and thus the benefits of steam-power be very largely extended. We have heretofore described various styles of mechanical powers, windmills, water-wheels, and steam-engines; and now illustrate a portable farm engine made by Frick & Co., of Waynesboro, Franklin Co., Pa., which has an excellent reputation. It is known as the Eclipse Portable Agricultural Steam Engine, and is specially manufactured for farm use. It is mounted on a suitable truck furnished with springs, where the boiler rests upon the axle, so that it may be moved over rough roads with safety. It is simple, safe, light, and effective, either as a stationary or portable engine. The smoke-stack is hinged, for the double purpose that it be out of the way when storing the engine under shelter, and to avoid the shaking of the long perpendicular cylinder during transportation. It has also a spark-arrester, so that even straw when placed on the top of it will not ignite. The same safety exists below at the ash-pan, which is provided with a close-fitting door, which can be closed if found advisable. It received the first prize medal over all other competitors at the Cincinnati Industrial Exposition of 1874, which is a valuable recommendation. In choosing an engine for any purpose, the special points to be considered are simplicity, safety, strength, and durability, but when an engine is chosen for farm use, safety from fire by sparks or ashes is one of the most important considerations. To be able to use an engine near the barn or a straw stack, or in a field in which there are dry, inflammable stubble and shocks of grain, is often very desirable, and this Eclipse steam engine here described is intended for these very purposes.



FRICK & CO'S PORTABLE STEAM-ENGINE.

The Florida Torreya.

In May last we gave an engraving of the California Torreya, or California nutmeg. As a supplement to Prof. Gray's admirable account of his visit to the Florida Torreya, (which we may regard as the original, it being the one first discovered, and upon which the genus was established), we give here an engraving prepared for that excellent work, Hoopes' "Book of Evergreens." It is a matter of regret that there is nowhere an engraving or other picture representing the whole tree; this illustration shows the foliage, a separate leaf of the full size being given at *a*, the fruit somewhat under natural size, *e*, the female flower enlarged, *d*, an enlarged male ament, *b*, and an enlarged anther, *c*. We hope, now attention is called to this interesting and beautiful tree, that some of our nurserymen may find it to their interest to procure a stock of it, as there are many who would gladly possess it for the name it commemorates, and at the same time ornament their grounds with one of the most beautiful, as well as rarest of evergreens.



THE FLORIDA TORREYA—LEAVES, FLOWERS, AND FRUIT.

THE COLORADO POTATO "BUG," which appeared on the Atlantic Coast in small numbers last year, is now in full force. In some localities it is very destructive to tomatoes, as it will be to egg-plants. Careful hand-picking and destroying the eggs will, if done in time, keep them under. As a last resort, use Paris green as directed last month on page 226. Examine the vines every day, and kill all found.

The Beech in Flower.

The writers upon landscape gardening, in describing the Beech, speak of the grace of the young and the grandeur of the old trees; they discuss its spray, its buds, its leaves, bark, and nuts, and even have something to say of its

THE BEECH IN FLOWER.

withered and dead leaves—but nothing of its flowers. Indeed, the idea of something brilliant and showy is so thoroughly associated with flowers, that many very intelligent persons seem surprised when we speak of the flowers of our common forest trees. In thickly wooded countries the indifference to trees in any other sense than that of timber and wood, is quite surprising. Every one, man and boy, can name the trees with the greatest accuracy by a glance at the bark, whether on the trunk or branches, nor are they less ready at recognizing them from the split surface; but show them a leaf, or a detached leafy twig, and they are quite at loss, and when it comes to the flowers, except in the case of the Tulip-tree, Locust, and other showy trees, they do not seem to have thought of their existence. There is, of course, a good reason for this; trees are felled in winter, when it is necessary to distinguish them by peculiarities that remain at that season, and it is really a matter of importance to know the differences shown by the bark. As to the beech, it is not our object to speak of the exceeding beauty and striking characters it presents at all ages, and at all times, but to call attention to it when in flower. Other trees are much more showy when in bloom, but for a peculiar beauty, a freshness, and spring-like air, the beech is unequalled. An engraving, which can only show form, fails to convey the effect where so much depends upon color, but we give one to show what the flowers are like. The long pointed buds of the beech are so much unlike those of other trees, as to attract the attention of all who care enough for trees to notice them. These buds open late in spring, and liberate the young shoot, which bears the leaves and flowers; the tender and partly expanded leaves are plaited in a most exquisite manner, and their green is such as is only seen by the painter in his dream, for it never comes from his brush. From the axils of the lower leaves of the shoot hang the staminate flowers, in roundish silky tassels, each hung by a delicate thread-like silky stalk, an inch or two long; an examination of these tassels shows them to be clusters of small, hairy, greenish bells, within which are numerous stamens. The pistillate or female flowers are much less conspicuous, and might escape the notice of a careless observer; these are found in the axils of the upper leaves of the shoot, usually two together upon the end of a short stalk; they do not look much like the prickly bur which, in autumn, encloses the beech nut; yet four scales will be found, which will develop into the four divisions of the bur. The expanding leaves and the silky tassels are not all that make the beech so beautiful in flower; at the base of each young shoot are the long wavy bud scales, of the richest brown, so thin and delicate that they look like small streamers hung out as decorations, and not at all like the useful blankets of bud scales which have kept all the preparations for this flowering time warmly enwrapped all winter. True, the flowering time of the beech is soon over, but he must be indifferent to beautiful things in nature who does not admire it while it lasts.

The Large-Flowered Bellwort.

Among a pretty large collection of native plants which we have brought into the garden,

LARGE-FLOWERED BELLWORT.

there is none that have seemed to enjoy the change more than the Large-flowered Bellwort. The botanical name of the plant is *Uvularia grandiflora*; the genus being named by Linnæus, whose lively fancy sometimes saw resemblances which would not occur to others, from *uvula*, the appendage which hangs in the mouth from the edge of the palate. The specific name indicates that it is large-flowered, and the flowers are much larger than in other species, of which there are four in the Atlantic States, two of them quite common in the woods in spring, the one in question being more frequent in the northernmost states than elsewhere. The engraving shows the upper part of two plants of the natural size; the stems, from one to two feet high, are clothed with leaves of a very tender green, and the gracefully drooping flower is an inch and a half long, of a very pale yellow. The plant belongs to the Lily Family, and the flower is like a small bell-shaped lily. It can hardly be regarded as a showy plant, but there is that delicacy and grace about it, which seems to be peculiar to the early flowers of spring. If those fond of flowers, and have not the means to gratify their tastes by purchasing the florist's rarities, would turn their attention to the native plants which are to be found in the woods, swamps, and fields, they would be surprised to

find what an interesting and very showy collection may be brought together at the cost of only a little trouble. Were we obliged to give up one or the other from our garden, the natives or the exotics, we should part with the exotics, and hold on to the wildlings.

New Tops on Old Pear Trees.

That the pear is a long-lived tree, the famous Endicott and Stuyvesant pear trees, going back two hundred years and more, attest. Yet we frequently find trees that look old at fifty years and less, with dead limbs, mossy trunks, and fruitless boughs. These old trees are often seedlings or of poor varieties, that have offered no particular inducement to their owners to care for them. A crop of astringent or sour pears is not much missed when it fails. These old trees sometimes occupy lawns or fields near the house, and will repay abundantly the little care that is needed to give them a new start, and to graft them with standard varieties. Some twenty years ago we took up one of these stunted old trees at a distance from the house, and removed it, with a block of frozen earth, upon a stone-boat to a rich border prepared for it in the fruit yard. It made a growth of a foot of wood the first season. It was then grafted with an improved variety; the grafts took kindly, began to bear the third year, and have yielded good crops of delicious fruit ever since. Five years ago we grafted an old tree in the garden, which bore only indifferent winter pears, about second-rate for cooking, with the Paradise of Autumn. We begun to get pears the second season from the grafts, and have had them in increasing quantity every year since. Last year it yielded over three bushels of splendid fruit, worth at least twenty dollars. The secret of success with these old trees is to stir the soil all around them as far as the roots extend, to manure liberally, to cut out all the dead wood, and about the second season, when the tree has got a good start, to commence grafting. We take three seasons to put on a new top, beginning with the highest limbs and working down. In renewing the vigor of the tree, almost any kind of manure or compost is available. Wood-ashes is one of the best fertilizers. Old bones, well buried, will pay a large interest on their cost. The contents of the privy vault and the cesspool, composted, are exceedingly valuable in renovating these old trees. In stirring the soil, care should be taken not to break the roots with the plow. We attach about equal importance to the stirring of the soil, and to the fertilizing, in the process of renovation.

A Pilgrimage to Torreya.

BY PROF. ASA GRAY.

DEAR EDITOR.—Ordered to go south until I should meet the tardy spring and summer, I was expected to follow the beaten track to East Florida. But I wished rather to avoid the crowd of invalids and pleasure-travelers, and turned my attention in preference to Western Florida, determined that, if possible, I would make a pious pilgrimage to the secluded native haunts of that rarest of trees, the *Torreya taxifolia*.

All that I knew, or could at the moment learn, was, that this peculiar evergreen Yew-like tree—prized by arboriculturists for its elegance, and dear to us botanists for the name it bears and commemorates—grew on the banks of the Apalachicola river, somewhere near the confluence of the Flint and Chattahoochee, which by their union form it. It was there discovered, nearly forty years ago, by Mr. Henry B. Croom, and had since been seen, at two or three stations, by his surviving associate, Dr. Chapman, of Apalachicola, author of the Southern Flora. Mr. Croom, upon ascertaining that he was the fortunate discoverer of an entirely new type of coniferous trees, desired that it should bear Dr. Torrey's name; and the genus *Torreya* was accordingly so named and characterized by the Scotch botanist, Arnott. It is of the Yew family, in foliage and in male flowers much resembling the Yew itself, but more graceful than the European Yew-tree, wholly destitute of the berry-like cup which characterizes the latter genus, and with the naked seed itself fleshy-coated, and larger than an olive, which it resembles in shape and appearance. One young tree, brought or sent by Mr. Croom himself, has been kept alive at New York—showing its aptitude for a colder climate than that of which it is a native—and has been more or less multiplied by cuttings.* Sprigs from this tree or its progeny, were appropriately borne by the members of the Torrey Botanical Club, at its Founder's funeral, two years ago, and laid upon his coffin. But very few botanists have ever seen the tree growing wild, and in its full development. I was desirous to be one of the number.

Among the broad, black lines with which the railway map is chequered, I found one which terminates at Chattahoochee. This was the objective point, and the way to it seemed plain enough, though long. Pilgrimages to famous shrines by railway, in the Old World, are now-a-days systematized and made easy. The untried one which I undertook, appeared to offer no privation nor difficulty, except the uncertainty whether I should be fortunate enough to find the grove which I sought. And, indeed, there was little privation to speak of. It was, however, rather trying to us, (*i. e.*, to myself and my companion in travel and life), when, after leaving Savannah on an early April morning, with the assured understanding that we should reach Chattahoochee late that evening, we learned that we were to be left for 20 hours at a small hamlet on the borders of East Florida, named Live Oak—a manifest *lucus a non lucendo*, as there were no Live-Oak trees in the neighborhood, but a prevalent growth of Long-leaved Pines. There was some good botanizing to console us, and, thanks to the railroad conductor for directing us aright, unpretending, but truly comfortable quarters for the night. Then, the next day, resuming our journey after a twelve o'clock dinner, which we were to mend with a supper at Tallahassee, we were at length informed that we were to be supperless; that the stations, both of Tallahassee and Quincy, were out of town and out of reach of all edibles; that Chattahoochee station, to be reached after ten o'clock, was only a freight house on the wild and wooded bank of the river, built upon piles in the swamp, reached at ordinary times over a mile of trestles, and now so overflowed that it probably could not be reached at all, certainly not that night; that the train would stop for the night two or three miles back in the woods, where the agent had taken up his abode in a box-car; that the town of Chattahoochee, a mile away, large as it appeared on the map, consisted mainly of a state-prison and a couple of grocery shops—neither of which were quite proper for passing a night in, even if we could reach them; in fine, that our only course would be to sleep in the car (which made no provision for it), and crave from the agent of the road a share of his breakfast.

The kind and intelligent fellow travelers as far as Tallahassee and Quincy, who gave us this disheartening information, finding that we were not disposed to stop short of our object, remarked that they had set us down as eminently philosophical people, since we had passed a night at Live Oak and still possessed our souls in patience, (a view which a couple who had stopped at the hotel there practically confirmed), and so left us with their good wishes, but evidently faint hopes. The weekly steamboat, which was to call at the landing next day, would eventually relieve us; and so we resolved to make the best of it. The worthy young conductor, who was to sleep in the car also, kindly proffered a share of his supper; but we fortunately had a bottle of cold tea, some crusts of bread ten days old, and wafer-biscuits, upon which we scantily supped, and then, folding around us such drapery and wraps as we had, lay down to sleep upon the couches which the conductor ingeniously arranged for us, by some skillful adjustment of the car-seats. In the morning, after due ablutions made at the tank of the locomotive, we were hospitably welcomed by the agent, Gen. Dickison, and his son, to a much needed share of their breakfast in the stationary box-car, which served both as bed-room, parlor, and dining-room.

To our great delight we found that Gen. Dickison knew the tree which I was in search of; and it was arranged that his son should conduct me to the locality, not far distant. So striking an evergreen tree could not fail of notice. The people of the district knew it by the name of *Stinking Cedar* or *Savine*—the unsavory adjective referring to a peculiar unpleasant smell which the wounded bark exhales. The timber is valued for fence-posts and the like, and is said to be as durable as Red Cedar. I may add that, in consequence of the stir we made about it, the people are learning to call it *Torreya*. They are proud of having a tree which, as they have rightly been told, grows no where else in the world.

My desire for a sight of it was soon gratified. Making our way into the woods north of the railroad track, along the ridges covered with a mixed growth of pines and deciduous trees, I soon discerned a thrifty young *Torreya*, and afterwards several of larger size, some of them with male flowers just developed.

As we approached the first one, I told my companion that I expected to find, under its shade, a peculiar low herb, which I described, but had never yet seen growing wild. And there, indeed, it was—greatly to the wonderment of my companion—the botanically curious little *Croomia pauciflora*, just as it was found by Mr. Croom, when he also discovered the tree, nearly forty years ago, probably at a station several miles further south. I was a pupil and assistant of the lamented Torrey when Mr. Croom brought to him specimens, both of the tree and of the herb, both new genera. The former, as I have stated, was named for Dr. Torrey by his correspondent, Arnott. The latter was dedicated to its discoverer, by Dr. Torrey. I well remember Mr. Croom's remark upon the occasion, that, if his name was deemed worthy of botanical honors, it was gratifying to him, and becoming to the circumstances, that it should be borne by the unpretending herb which delighted to shelter itself under the noble *Torreya*. It is not, as Mr. Croom then supposed, exclusively so found; for it grows also in the central and upper portions of Alabama and Georgia, where *Torreya* is unknown, but where I fancy it may once have flourished. I can not here detail the reasons for this supposition.

There is a second *Torreya* in Japan, founded on Thunberg's *Taxus nucifera*, of which I saw original specimens at the British Museum, in the winter of 1838-9, and then identified the genus. There is likewise in Japan a second *Croomia*, very probably in company with the *Torreya*. A third *Torreya* inhabits *California*, but it has no associate *Croomia*.

I have formerly treated of the peculiar distribution of these genera and species between the United States and Japan, have collocated a large number of equally striking similar instances, and have offered certain speculations in explanation of them. The views maintained have been more and more confirmed, and are now adopted by the leading philosophical botanists.

The few hours devoted to this first search for *Torreya*, pleasant as they were, yet were too scantily rewarded to satiate my interest. I saw no tree with trunk over six inches in diameter, and found no female blossoms. It was necessary to hasten back to the railway car, to await the expected summons to the steamboat. I bore with me, besides my botanical specimens, a stick of *Torreya*, suitable for a staff, which I propose to make over to the President of the Torrey Botanical Club, for the official baton. Before long the whistle of the steam-

* The *Agriculturist* for May, states that the tree spoken of, or its seed, "was brought from Florida by the late distinguished Major Le Conte." I am confident that this is a mistake, and that Le Conte knew nothing of this tree in its native station. If my recollection is correct, at least two seedling trees were placed in Dr. Torrey's hands by Mr. Croom, one of which was consigned to A. J. Downing, of Newburgh, the ultimate fate of which is unknown to me, the other to Mr. Hogg, senior, which, as the *Agriculturist* states, is now in Central Park.

boat announced its approach to the landing, and offered us a prospect of a much needed dinner; the water had fallen sufficiently to allow us to be conveyed to the wharf upon a hand-car, and so we embarked for Apalachicola *via* Bainbridge. That is, we went up the Flint River about 40 miles and thence back, in the night, past the place of embarkation.

I will not here give any account of a delightful 10 days' episode, beginning with the voyage down the brimming river, bordered with almost unbroken green of every tint, from the dark background of Long-leaved Pines to the tender new verdure of the Liquidambar and other deciduous trees in their freshest development, interspersed with the deep and lustrous hue of the *Magnolia grandiflora*, and, when the banks were low, dominated by weird naked trunks of Southern Cypress (*Taxodium*), their branches hung with long tufts and streamers of the gray and sombre Southern Moss (*Tillandsia*) below, while above they were just putting forth their delicate foliage. Along the lower part of the river, occasional Palmettoes gave a still more tropical aspect. Then followed a week and more at dead and dilapidated, but still charming Apalachicola, where the Post Office opens on Monday evenings, when the steamboat arrives, and closes for a week the next morning, when she departs,—where the climate, thanks to the embracing Gulf, is as delicious in summer as it is bland in winter; where game, the best of fish, and the most luscious oysters are to be had almost for nothing, and blackberries come early in April when the oranges are gone; and where, far from the crowd and bustle of the world, with Bill Fuller for caterer, and his wife Adeline for cook, the choicest fare is to be enjoyed at the cheapest rate. Then there was the pleasure of renewing our acquaintance with Dr. Chapman, and botanizing with him over some of the ground which he has explored so long and so well, of gathering, under his guidance, the stately *Sarracenia Drummondii* in its native habitat, and, not least, acquiring from him fuller information respecting the localities where *Torreya* grows.

The return voyage up the river was not less enjoyable than the descent. It was so timed that the bold bluff of Aspalaga, where the tree was first found, was reached after sunrise. But it was sad to see that the Torreya trees, which overhung the river here in former days, had been cut away, perhaps for steamboat fuel. So I did not land; but leaving the boat a few miles above, at the upper Chattahoochee landing, while it made the run to Bainbridge and back, I had a long day to devote to *Torreya*. Following Dr. Chapman's directions, I repaired to the wooded bluff to the north of the road, where I soon found abundance of the trees, of various ages, interspersed among other growth. The largest tree I saw grew near the bottom of a deep ravine; its trunk just above the base measured almost four feet in circumference, and was proportionately tall. But it was dominated by the noblest *Magnolia grandiflora* I ever set eyes on, with trunk seven and a half feet in girth.

After long search one tree was found with female flowers, or rather with forming fruit, from which a few specimens were gathered. Seedlings and young trees are not uncommon, and some old stumps were sprouting from the base, in the manner of the Californian Redwood. So that this species may be expected to endure, unless these bluffs should be wantonly disforested—against which their distance from the river and the steepness of the ground offer some protection. But any species of very restricted range may be said to hold its existence by a precarious tenure. The known range of this species is not more than a dozen miles in length along these bluffs, although Dr. Chapman has heard of its growing further south, where the bluff trends away from the river. At least the Yew-tree grows there, which Mr. Croom found with the *Torreya* near Aspalaga, and I heard of it (identifying it by the description) as growing five or six miles away.

Returning to the boat at nightfall, I brought with me thirty or forty seedling Torreyas, which, being too far advanced to be safely sent far north this spring, have been successfully consigned to the excellent Mr. Berckmans' care, at Augusta, Georgia. I hope that one or more of them may in due time be planted upon the grave of Torrey.

A word or two of Mr. Croom and his sad fate. His name merely is known to botanists as the discoverer of *Torreya taxifolia* and of *Croomia pauciflora*, and as the author of a monograph of *Sarracenia*, in which the handsomest species, *S. Drummondii*, was originally described and figured. He was the first to find this in blossom, Drummond having seen and collected the leaves only, in a winter visit to Apalachicola. Of the botanists who remember and personally knew him, only Dr. Chapman and myself survive. Mr. Croom, originally, I believe, of Newbern, North Carolina, had a plantation at Quincy, Florida, and another at Marima, east of the Apalachicola river; and it was in passing from one to the other that he discovered the tree of which I have been discoursing, as well as the herbaceous plant which bears his name. He was an accomplished and most amiable young man, full of enterprise and zeal for botany, and much was expected from him. But, just as he was entering upon his chosen field, and had made preparations for a thorough exploration of Florida, in connection with his friend, Dr. Chapman, he was lost at sea, with his wife and all his children, in the foundering of the ill-fated Pulaski, between New York and Charleston.

I have been told that two seedling Torreyas which Mr. Croom planted near his house at Quincy, and which had become stately trees, have recently been demolished by the present proprietor; also that a tree of Mr. Croom's planting still flourishes in the grounds of the State-house at Tallahassee.

THE HOUSEHOLD.

☞ (*For other Household Items, see "Basket" pages*).

Household Inquiries.

Dish Washing.—"Mrs. E. P. W.," wishes to know if we ever heard of such a thing as a dish-washing machine.—Yes, we have heard of such a machine, and seen an engraving of it. After it was invented, described, and figured in one of the papers devoted to inventions, that was probably the last of it, for we never heard of one in use, and never expect to. The great trouble about a machine is that it can not think, and will give the same treatment to a delicate China saucer that it would to a large heavy platter. To be sure, dish-washing does not demand a high order of intellect, but it requires some thought, and there are many different articles, each of which must be handled differently.—The same lady asks for a rack upon which to drain dishes and save wiping. If any of our housekeepers have an article of this kind that they have found useful, we hope they will tell others of it.

Dusting Ornaments.—"Mrs. T. M. L." The best way to remove dust from delicate articles, the parts of which can not be readily reached by an ordinary duster, is by blowing. The city furnishing stores keep small and exceedingly neat bellows, which, when we first saw them, we supposed were some child's toy, but learned that they were made expressly for dusting mantel ornaments and similar articles; they give a small but strong stream of air which, reaching every minute crevice, very cleverly dislodges the dust.

Keeping Sausage Meat.—"Miss C. N. C." After trying several methods, we have found one which will keep the meat in perfect condition for several months. In cold weather there is no difficulty, but as soon as it becomes warm, it will spoil unless the air be perfectly excluded. As soon as the sausage meat is made, we make up into cakes that which is to be kept, and cook it the same as for the table; the fried cakes are then placed in a stone jar, and the fat which comes from them is poured over them, and as this is not enough, more lard is melted and added, to thoroughly cover the cakes. They should not be pressed against the sides of the jar, but so placed that each will be completely surrounded by the fat. When needed they require only to be warmed through, and they are ready for the table. We do not know how long the meat will keep in this way, but the writer has kept it perfectly well until the middle of June; not caring for sausage in warm weather, we do not usually put up enough to last until that time.

Ice Cream.—Mrs. Hartshorne. We do not recommend one freezer over another; have used those by two different makers, and can see no difference in them. Probably one of the leading kinds will freeze as quickly as another, and we do not regard very rapid freezing as desirable. The cream requires a certain amount of beating and stirring in order that it may have the proper smoothness. The fineness of the ice has much to do with the rapidity of freezing. We remember seeing a maker exhibit his freezer to show that he could make ice cream in three minutes. We noticed that he started with cream which had been for some time kept upon ice, and was consequently nearly ice-cold; he used fine salt and ice reduced to the greatest possible fineness; with these he made short work. Ice is generally used too coarse. Have a strong bag and a heavy wooden mallet; place the ice broken into small lumps in the bag, and then pound the ice through the bag, laid on some solid place, with the mallet; this will make the ice very fine. In keeping the cream after it is frozen, larger ice may be used, and only a moderate quantity of salt.

Cleaning Marble.—"R. H. S." The question "How to clean marble," is very indefinite. In removing stains of all kinds it is necessary to know what caused the trouble. If the marble is soiled by grease, pipe clay mixed to a paste with water spread over the stain, and allowed to dry and remain for several days after it is dry, may be of use, but it is a very difficult matter to remove grease or any other substance that has entered the pores of a material of such close texture as marble.

Tin Weddings.

Passing an extensive furnishing house twice daily, we most always give a glance at the show-window. Some months ago we saw a most beautifully fashioned shoe on exhibition, which appeared to be made of the finest planished tin. We wondered what it could be for; it was too large for a smoker's ash-receiver, and could hardly be an article for kitchen or table use; several days after, and before we had time to step in and solve the matter, there appeared by the side of the shoe an elegant fan of the same material, at least so far as fine workmanship could make a tin-fan elegant; this added to the mystery, but in a day or two all was made plain by the displaying of a card reading "Articles for Tin Weddings." All that we know of "tin weddings" is that the fifth anniversary of marriage is by some people celebrated, as a sort of burlesque upon silver weddings, by a party, at which the guests made presents of tinware. The presents were formerly of useful articles, but now it seems that the burlesque itself is travestied, and much ingenuity is expended in making articles for tin weddings which can be of no possible use to those who receive them. Quite a large number of these articles are now imported from France; two of these have already been named; besides these we found on inquiry there were ridiculous bouquets of tin flowers; preposterous necklaces, and other jewelry of skillful workmanship, but all of the same cheap material; a tin saw and other tools for a mechanic; instruments supposed to be emblematic of the medical profession, and other curious, expensive, and equally useless articles are offered. Now we believe in innocent amusement, and if any fun can be had out of a tin wedding—if the parties most concerned are so disposed—so be it, but there should be some sense even to our nonsense, and we must say that we regard this matter of tin shoes, tin bouquets, and the like, as carrying the matter just a little too far.

Home Topics.

BY FAITH ROCHESTER.

Use the Sunshine.

"The sunshine is a glorious birth," giving warmth, giving light, giving life to all nature. It

Fig. 1.—COFFEE TREE—LEAVES, FLOWERS, & FRUIT.

takes us long to find out our best friends, and we have scarcely begun to appreciate our sunshine. We hide away in dark, damp houses, and groan, and ache, and cough our lives away; while a little more sunshine, used all day, and every day, when it can be had, would make our lives not simply endurable, but joyful. I have learned to dread window-blinds, and even white window curtains that can not be entirely drawn aside during the day. I like a full blaze of daylight in my living and my sleeping rooms, except on very hot days, when every living thing must crawl into the shade. But there is, perhaps, no day so extremely hot, as to justify a twilight dimness of light all day long, in rooms where people live. No rooms can be healthy that are kept dark. Children can not thrive, any more than plants, unless they live habitually in the light. Invalids neglect one of their best means of recovery to health, when they retire to darkened rooms, and learn to dread the light. It is true that persons, who have lived for years in dimly-lighted rooms, feel pained by the brightness of better lighted apartments, and dread to go out-doors without veils and parasols; but that is only because darkness has made them sickly creatures, out of all harmony with healthy conditions. Some housekeepers love darkness rather than light, because their deeds are evil. They do not wish their dusty corners to come to the light, and be reproved. Others place an inordinate value upon the bright colors of their carpets, not knowing that bright faces and bright spirits are far more important than carpets, and that bright faces and bright spirits depend much upon the sunshine.

I wish every housekeeper would turn all her bedding into the bright sunshine every pleasant day, and on rainy days some artificial heat might be used instead. We hope for the time when bathing facilities will abound, when clean bodies will lay them down to sleep in clean beds, and sleep will indeed be balmy. If any reader does not understand this, let her sun only the sheets of her bed, and her night-clothing, for two hours every forenoon, half-a-dozen times, and she will notice how perceptible is the fresh, clean smell they have at night. Merely to air a bed in a shady room, is not half so well. The bright sunshine, (perhaps I ought to say the *hot* sunshine, for I notice that the bright winter sunbeams do not entirely produce the same effect,) seems to take out all of the perspiration, all of the personal odor, which is apt to linger about bedding and clothing in the summer. When it is convenient to air freshly ironed garments in the sunshine, this is much better than to hang them by the fire. You will find that they have a different smell, and one that is very fragrant.

The Baby Carriage.

We can do very well without cradles for our babies. I don't know as my children or myself have suffered for lack of one. But a baby-carriage seems indispensable. Without one, how can a child too young to walk get plenty of out-door life? I wish that good baby-carriages were cheaper, so that every child might have the use of one. Some of the cheap carriages are so heavy, so hard to draw or push, that it is quite a task to use them. Many of the two-wheeled carriages come under this condemnation, but not all. There is a danger in the use of two-wheeled and three-wheeled coaches, which is avoided by the use of a carriage with four wheels—the danger of tipping over when the child leans too heavily forward, to one side, or when one presses upon one side of the handle; but the four-wheeled coaches are expensive, and a careful nurse can get along well enough with either of the others, which is well made in other respects. It should be hung so as to give an easy motion to the child, and a light weight to the person moving it. The body should be so shaped that a young baby can lie straight in it easily, without getting humped shoulders. If the carriage is pushed from behind, it is difficult to keep good watch of the little one, unless the shade is adjustable like the umbrella shades, and these do not afford the same protection from wind as the close old-fashioned covers.

To Protect the Purity of Children.

This is a subject of great anxiety with good mothers, and many such read the article entitled "Don't touch the Children" in the *Agriculturist* for May. For nearly a year my children lived close by a railroad depot, and people wondered that I was not in constant alarm lest they would get killed or seriously injured by the passing trains, they appeared to be so fearless in their investigations. But this danger was never uppermost in my mind. If my boy was late in coming home, my first fear was lest he might be learning to "loaf" in the little store close by, which seemed to be full of men and tobacco smoke in the evening, or lest he might have learned to endure the profanity and obscenity in which many railroad employees indulge. To lose a child by death is not the saddest loss to a mother.

But one thing is certain: it is useless to think of preserving the infantile innocence of our children unless we keep their minds infantile in other respects, and this is not desirable. Neither is it desirable to preserve the innocence of infancy unchanged. It is simple *ignorance* of good and evil, and no one is fit to live a manly or womanly life who does not know the difference between good and evil. Yet none of us would hasten to make our children familiar with evil. We must only recognize the fact that if they live in this world they will have to meet with various forms of wickedness, and we should study how best to prepare them to walk unscathed through life's ordeal.

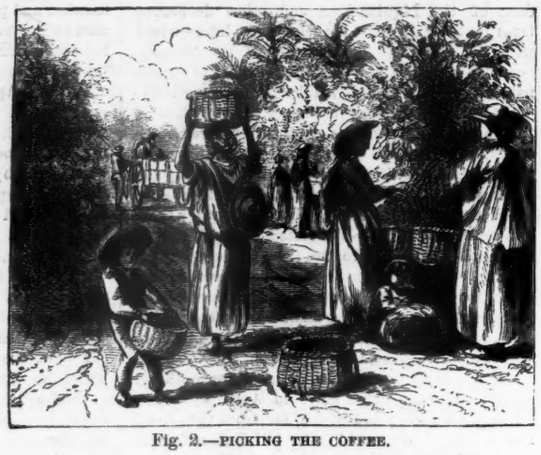


Fig. 2.—PICKING THE COFFEE.

It has been customary to keep from children much knowledge which it would really be better for them to receive "in the cool innocency of childhood," while yet those passions are dormant, which may some day become the means of terrible temptations. The question is—who shall impart such information? Only the pure in heart ought to attempt it, but if mothers are faithful to their duty, the task will pretty surely be theirs. I feel sure that it is the best way to give truthful answers to children's curious questions about additions to the family. Those who have not tried it, have no idea how easily this curiosity can be satisfied without falsehood, if it is not allowed to feed

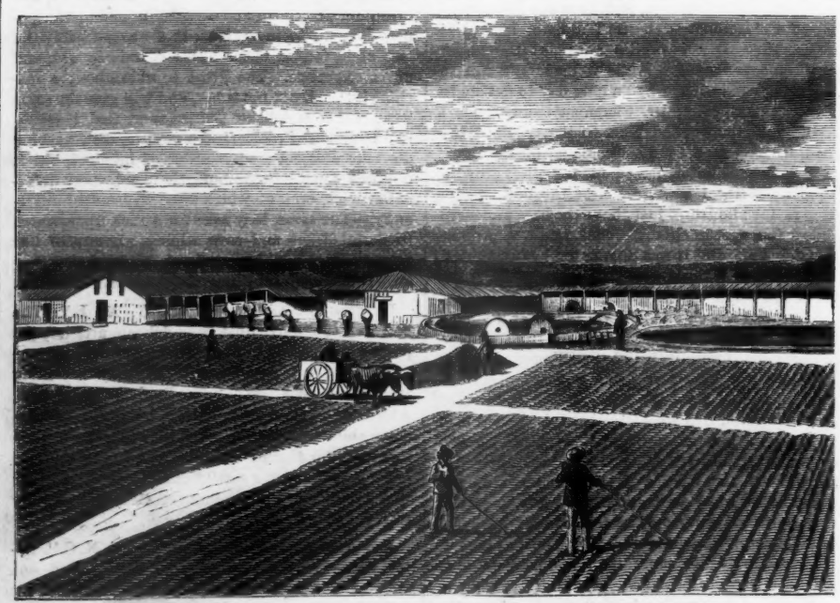


Fig. 3.—THE COFFEE BERRIES SPREAD IN THE YARD TO FERMENT AND DRY.

and grow on mystery. I know what I am saying. Very likely the answer, "God gave it to me," will satisfy the inquirer of three years old; and that I regard as a truthful answer. Is not He the one Life-Giver? Is He not *creating* now as much as ever? Can any *growth* go on without His power? But other explanations will be called for at a later

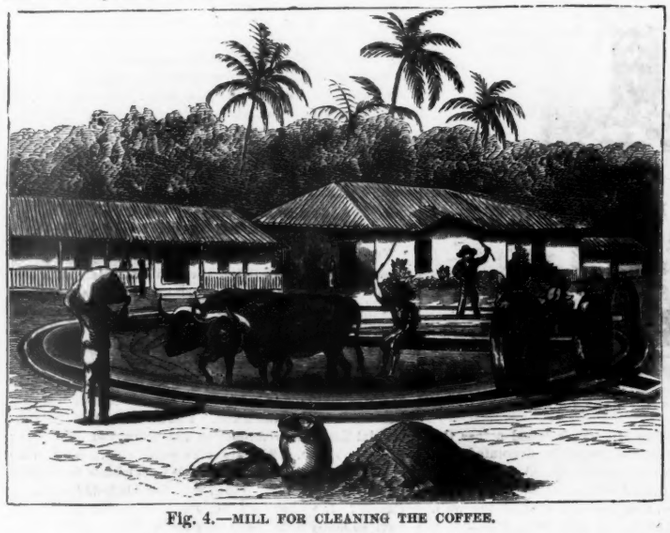


Fig. 4.—MILL FOR CLEANING THE COFFEE.

day, and they must be bravely and tenderly given *when called for*. A child's curiosity is usually healthy, and calls for wholesome gratification—provided it lives among good people. Curiosity grows morbid when it is baffled. Shall it have the truth from one who loves its soul, or such impure communications as any evil-disposed person may choose to give? I dare not risk the latter. I dare not leave a darling child in such ignorance as will make it the comparatively easy prey of vice.

One might imagine that a child's thoughts would be running too much upon the subjects of which we now speak, if informed at all thereon; but it is not so, according to my observation. Children are inquiring about everything, and in an active child one impression quickly follows another.

We have no choice in the matter, whether our children shall grow up in *ignorance* of th right and wrong use of certain organs and passions, unless we are able to seclude them entirely from the world into which they have been sent. The choice left us is, who shall inform them, and how, and when? I should say, one or both of the parents, with religious tenderness, as speaking upon the most sacred themes, and just when the natural opportunity is given, at each time when the confiding child comes to its best friend, with a question which springs naturally from a young and innocent heart. It may *all* be told thus, during the growing years, little by little, as the child's development suggests new needs, told as something that is never to be spoken of with vulgarity, but as serious truth between parent and child, or as scientific facts not suitable for random discussion.

We must do what we can to save our children from vicious associates, but most of us will suffer many a heart-ache, because of the evil influences around our children. Danger sometimes lurks where we least suspect. Obscene books circulate among the good and respectable children of a school taught by some excellent teacher, or vicious practices are secretly taught by "well-behaved" little cousins. But if we can keep the confidence of our little ones, so that they cannot enjoy keeping any secret "from mother," but will come spontaneously to us with every new thing that interests them, we may be able to save them from any serious moral poison. This seems to me our safest course to save our children, to be ourselves their most intimate friends, talking confidentially with them upon such subjects as interest them, so that they will not be driven elsewhere to get relief for their itching curiosity, or their over-burdened minds, and receive impressions that are difficult to eradicate.

The Emancipation Suit.

I referred to this suit some time ago, but lately I have had a chance to examine and try a summer suit made by the Boston Dress Committee, after this pattern, which they recommended as superior to all other patterns. It is certainly better than anything else I have seen. The waist is easy in its perfect fit, and by extending below the waist line, gives room for three rows of buttons, the lower ones for the drawers, the next row above for "dress drawers," when worn, as they should be when going out in cold weather, (over-drawers made of flannel or waterproof, or of material like the dress), and the upper row of buttons for the skirt or skirts. By this arrangement one band does not over-lie another. The fullness across the breast is not made by setting in a simple straight piece of cloth, gathered at top and bottom, but is scientifically arranged to fit, and at the same time support the bust. Thus it answers the purpose for which many women profess to wear corsets. Elastic stocking-supporters button to each side of the waist, and every article which a woman finds *necessary* to wear on any occasion, may in some way be supported by this carefully devised waist.

BOYS & GIRLS' COLUMNS.

The Doctor's Talks—Something about Coffee.

I suppose that most boys and girls who read this, know what Coffee is, even if they do not drink it. They know that it comes from the store, and as some is called Java, and other kinds Rio and Maracaibo, they are probably quite sure that it comes from some far off countries. A friend from Brazil brought some neat little sketches of the way coffee is prepared for market, and they being very interesting to me, I thought they would be so to you, so I had them engraved, and very pretty pictures they make. But before we talk about the preparing, let us see what coffee is. You perhaps hear the store-keeper speak of the coffee grains as "coffee beans," and may think that it grows in a pod much like the common bean, but this would be a great mistake. As you can only see the coffee plant in some rare collection of greenhouse plants, here is an engraving (figure 1), of a twig showing the leaves, flowers, and fruit. The coffee tree would grow 20 feet or more high, but in the plantations they do not allow it to grow over 10 feet high, as it would be too much trouble to pick the coffee if too high. We have no common plants very closely related to coffee, it belongs to a very large family of plants, of which there are many in tropical countries, and very few in ours. It is called the Madder Family, and the only very common plants of that family in the northern states that I think of, is the Button-bush in the swamp, with its round head of white flowers late in summer, and the beautiful little Partridge-berry, or Twinberry, that you find in the woods, growing flat on the ground, with its white hairy flowers, (oh so sweet and "woodsy"!) and bright red berries that it takes two flowers to make. These are far off cousins of the coffee, but do not look much like it, as you can see by the engraving. Well, you must imagine these leaves in the engraving to be six inches long, and all the rest enlarged in proportion, and you can then judge how the coffee plant looks. The flowers are white, and have a very pleasant, though not strong scent, and after these fall, then the fruit appears; this, when just ripening, looks as much as can be like little cherries. You may be sure that a coffee tree is a very pretty sight, for I have seen several in greenhouses, and it must be much finer in the open air; the leaves are so bright-green, the flowers so white, and the fruit is bright-red when it begins to ripen, and turning to a rich purple color when "dead-ripe." The fruit is only like a cherry outwardly, for if you break it open, you will find, instead of one round stone, two that are half round, with their flat sides towards each other. A berry cut across is shown in the engraving. So the coffee, instead of growing like a bean, is the seed of a berry. The gathering and preparing for market is shown in the other pictures, but before I describe them, let me answer a question that many of you no doubt are ready to ask—"How came people to use coffee. Where did it first come from?"—It is said that the coffee was first used in Abyssinia, (look at your Atlas), and it grows wild there, especially in the district of Kaffa, from the name of which we get the word coffee. Would you like to know who first brought it from Abyssinia? I doubt if you will recollect his name, as it is no less than Djemal-eddin-Ebn-Abou-Alfagga. This man with a name brought coffee to Aden, (Atlas again), and from there it gradually spread to other countries. It was at first used by the Mahommedans who wished to keep awake during some of their all-night ceremonies, and it was passed around in their mosques during their religious services. Coffee in early times was not in general use as it is now, but was sold only at coffee-houses, the first one in London was opened in 1652, and these houses in England kept up for a long time. Coffee was at first only cultivated in Arabia, (Atlas), and other parts of the East, but the use of it so much increased, that it was after a while grown in almost all warm countries. It is now cultivated in the East Indies, the West Indies, Brazil, Hayti, Venezuela, Central America, and elsewhere. Before the coffee appears in the cups upon the table, it has to go through many hands. In South America, where it rains often, the coffee is picked before it is so ripe as to be beaten from the tree by the rain storms, and this makes work for men and women, young and old; figure 2 shows the coffee plantation at picking time. You must recollect that now the coffee grains are in the little berry or fruit. The berries are taken to a large yard seen in fig. 3, here the ground is very smooth and hard, and here they are spread in layers several inches thick, and the berries first ferment or spoil, the workmen giving them the needed turning and stirring, until after some weeks the juicy berry has become dry. Then to get rid of the dried berry, and also a skin that is around the seeds, the mill shown in fig. 4 is used. The large rollers you see in the picture go round and round in a channel, where the dried berries are put. The rollers are heavy enough to break up all the other parts but the seeds—for you know that raw coffee is pretty tough, and leave them whole. Then all the dirt and husks have to be separated, and this, on some plantations, is done

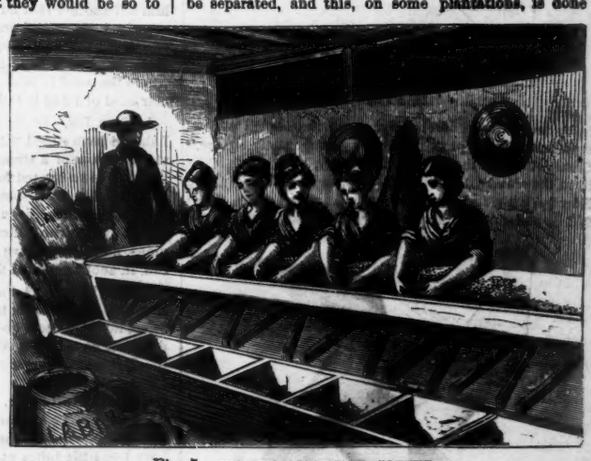


Fig. 5.—WOMEN ASSORTING COFFEE.

by washing, and on others by a sort of fanning mill, very much like the one used by farmers to clean their grain. Then you will think the coffee is ready for market; not quite yet. A sensible farmer does not put his big and little apples, and the fair and the small and ill-shapen ones into the same barrel, but he assorts them, and that is what the coffee grower does with his produce, which is assorted into several kinds. Small work you will think; so it is, but it gives employment to a great

number of women, who sit at a table properly arranged, as in fig. 5, so that they can push the largest grains into one bin, the smaller into another, and the poorer stuff into a third—each grain is thus handled by these women, who sit all day long at the work. After all this it is put into bags, and goes to various parts of the world. I suppose you know what happens to the coffee after it gets to us. And then what quantities of coffee come to these United States! Here is something that our forefathers who first settled the country had probably never seen, if they had even heard of it, and now we import about three hundred millions of pounds of it; to be more exact, in 1872 there came into the country 298,805,946 pounds of coffee!

Aunt Sue's Chats.

ALLIE wants to know if I will tell her "how to clean hair switches nicely." It is a little out of my line, but I like to oblige. Put a small tea-spoonful of bi-carbonate of soda, (cooking soda), into your wash-basin; pour over it four or five pints of water, and wash the switch thoroughly. Then rinse it more thoroughly in clear water. Wipe it as dry as possible, and hang it in the air. When nearly dry, smooth it a good while with the hand....I don't like the use of hair-grease, for I think if the scalp is kept well washed, and the hair thoroughly brushed, it will be glossy enough; but if hair-grease *must* be used, I do "know" a very nice preparation, which I will give for the benefit of whom it may concern.

Recipe for Pomatum.—White wax, 1 oz.; spermaceti, 1 oz.; sweet oil, 6 oz. (1½ cupful); rose-water, 2 oz. (1 wine-glassful). Melt the wax, spermaceti, and sweet oil together. To do this, place the jar, or whatever you use, in a sauce-pan of water, putting a chip or something else under it, to keep it from touching the bottom of the sauce-pan. Set the whole over the fire, and when the materials are completely melted, take it off and beat and stir the mixture while cooling, adding the rose-water a little at a time, until it becomes white and creamy. If you wish any other perfume than that of the rose-water, you can stir in a very little of whatever you may fancy. This is the *least greasy grease*, the girls tell me, that they ever used, as it does not soil the ribbons on their hair.

GEORGE E. MILLS.—"AUNT SUE'S PUZZLE BOX" is simply the name given to the puzzle department.

MARY J. W. says she doesn't know how to make paper-windmills, and wishes I would describe them to her. Well, perhaps there are two more people in the world who do not know how to make them, and as they ought

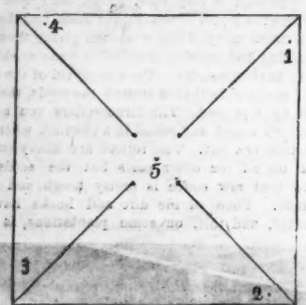


Fig. 1.—THE PAPER MARKED.

to be taught, I do hereby give them the benefit of instruction. Cut a piece of writing-paper exactly square. Crease it across the middle, diagonally, both ways. Cut it in the creases to within an inch or so of the center. Now get a pin and stick it through the dots: first 1, then 2, 3, 4, and finally through dot 5 into a small stick, (or

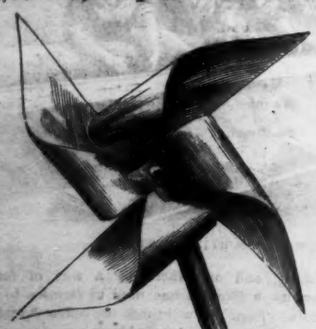


Fig. 2.—THE WINDMILL MADE.

even into a match, if you are sure there is no phosphorus left). Hold it in front of you and walk quickly across the room; or if you are in the open air, hold it towards the wind, and then see the delight of the baby, for whom you made it, as the windmill whisks around "like a thing of life."

MRS. EMILY B.—Your favor, concerning crosses, is received. I do not know the kind to which you refer, unless you mean those made with stars composed of four doubled strips of paper. A very pretty and simple cross

ORNAMENTED BARK-CROSS.

may be made of two pieces of bark, fastened across the center, with wire or nails, and tastefully decorated with pressed vines, leaves, berries, moss, etc. A square piece of wood for the base, covered with moss, etc. Or it may be made without a base, and fastened against the wall. Little vines made of wax leaves and berries look very pretty twisted around the cross. If bark is difficult to obtain, a substitute may be made with card-board, tastefully covered with moss and lichens, sewed or glued on.

Answers to Correspondents.

BY THE DOCTOR.

I wish you would understand and try to remember that Aunt Sue and I are very different persons, and though we are very good friends, we neither of us care to get letters which should be sent to the other. Please do not ask Aunt Sue to tell The Doctor, or tell The Doctor to ask Aunt Sue this or that; we do not meet oftener than once a year, and such messages have to be sent by mail, and you can do that yourselves.

WHAT IS A FICE?—"A School Boy," writes from Salt Lake City—how these boys are scattered!—that one boy at school began his composition with "My little dog is a *fice*." The teacher and all hands were puzzled to know what a fice was, and the boy finding it in no dictionary applies to me. All I know about the word is, that I have heard it used a few times by people from the southern states, as I thought, to express contempt. I once went to school with a boy from Georgia, and I recollect hearing him tell another that he "acted like a fice," and he was surprised when I did not know that it meant some kind of a dog. Our Utah friend is right, it is not in the dictionaries, and I hope that some of my boys who live where the word is in use, will let us know what particular kind of a dog is called a *fice*.

ANCHOR ICE.—In my answer to "L. B.," in May last, I should have stated that the reason given for finding ice at the bottom of a stream was only one explanation, and that others accounted for it in a different manner. Now I have letters from some old folks who think that the explanation then given does not meet the whole case. The subject is too difficult for the Boys and Girls' Columns, and I shall have to attend to them as soon as I can, in another part of the paper.

HONEY DEW.—"A Farmer's Boy" writing from Sterling, Ill., says he finds that during summer nights a very sweet liquid collects on the leaves of trees, called honey-dew, and he wants to know what it is and what causes it.—It is merely sugar and water, but there is as much difference of opinion as to the cause as there is about the cause of anchor ice. It is well known that plant lice, (*Aphides*), which are found upon most plants and trees, have the power of giving off a sweet liquid; these insects have two little tubes at their tail-ends, from which they force out minute drops of this liquid, of which ants and other insects are very fond. As the ants go among the plant-lice and tickle them to make them "give down" this liquid, the lice have been called the ants' cows; bees too are very fond of it, and collect all they can find. It is claimed by some that honey dew always comes from these little insects, and that wherever this is found plant lice may also be found. On the other hand, some very learned men say that honey dew comes from the tree itself. The sap of trees contains sugar, and they say that under some circumstances this syrup is exuded through the pores of the leaves. It is not yet settled which is right, or if both are not right. Here is a case in which this "Farmer's Boy" and other farmers' boys and other boys can help. All the most learned scientific men do is to use their eyes and see what is before them; only they are very careful to be sure that they see correctly. Now let us have some observations. When you next find honey dew, note if it is on the leaves only on one side or on both sides; if on the upper side, examine the leaves above those upon which it is found, and see if there is any plant lice which could have dropped it. Look sharp, as they are small, and often green like the leaf. If on the underside, look for the lice there. Also look upon the plants, stones, or whatever may be under the tree, and see if there is any there. Also, what kind of trees have honey dew on them.—Have not space to answer your other question this time.

The 4th.

Yes, of course we believe in celebrating, especially this very 4th, which, if not the centennial, is within one of it. We wonder how many who work hard every year, and get so tired at celebrating, that at night they are glad that the 4th comes but once a year, ever think what it is all about. The next 4th of July after this, (1876), we all expect will be a rouser, because you know that it is the centennial. They are going to celebrate tremendously at Philadelphia, and everywhere more than ever before—because it is the centennial. You all know that the centennial has some reference to 100 years, and this being the year before, is 99 years since something. Why do we celebrate the 4th of July at all? Why celebrate the 4th any more than the 12th, which was the birth-day of Julius Cæsar? Let's have all the fun we can, for we do not have so many holidays as they do in some countries, but before we try so hard to be happy, that we get very tired, why not stop to think what it is all about. We know that the bells ring, the cannon boom, and that crackers crack by day, and rockets go skyward by night. No one works, and every one gets very hot in doing something out of the usual way. Now what is it all about? Did you ever think what it was that you are celebrating? If not, let us hint what we think would be a good thing to do. Instead of buying crackers and powder, and other noisy things, and making it very disagreeable, look up the "Declaration of Independence," and read it. Get the boys together, and let the best reader of the lot read it aloud to the rest. Then talk it over and see how much any of you can tell what it all means. Why was that Declaration made, and what did it lead to? What was the government of the country before that, and what has it been since. This is a kind of celebration that the girls can join in too, and it would not be strange if some of them could tell all about it quite as well as the boys. This will be a capital preparation for the centennial which comes next year. Just think, a hundred years since that Declaration was written, and you may see what no boy or girl ever saw before, the 100th birth-day of the nation. The older ones among you should, before another 4th, read carefully, so that you can understand it, the Constitution of the United States, and know what people mean when they say such a thing is not constitutional.—But wouldn't we advise you to have any fun on the 4th? Certainly. Have all the games and frolic you can, but as we want all hands to be present at the great celebration next year, we would advise you to let pistols, guns, and powder alone. Do you know that in cities the 5th of July is a sad day? One takes up the paper and sees such a long list of accidents from powder, and sadly looks over it to see if any friend has lost life or limb by careless use of firearms, in his own or another's hands.—Let us try just this 99th celebration without powder, and see if we don't feel quite as happy and satisfied when bed time comes.

Aunt Sue Goes to a Spelling Match.

ELLIE M. S., wants to know "all about spelling matches."—Well, Ellie dear, "all about" is somewhat comprehensive; but I can tell you about one I attended at the Academy of Music, in Brooklyn; and I suppose they are "all" conducted on "about" the same principles. First thirty or forty girls, aged from 12 to 20, I should think, filed in, and were arranged on the long settees, which were placed in a semi-circle on the stage; then the lads entered and sat on the benches behind the girls; after them came the grown-up Reporters. The latter sat at the right of the stage, the school-children on the left. The Mayor of Brooklyn was present, and three or four other gentlemen. One of them announced that only English words would be given out; that if a word was spelled wrong by one person, others should spell it until it was spelled correctly. This rule gave great advantage to those who succeeded the first incorrect speller. Then Mr. H. S. took his position where audience and

scholars could hear him distinctly, and announced the words to be spelled. Two umpires sat on the stage, with Webster's dictionary for reference. Worcester's spelling was allowed, but Mr. Worcester was not represented, as his dictionary didn't happen to be present.

I was not on the stage, but I had paper and pencil with me, and as each word was given out, I wrote it down, and got along remarkably well until they came to "guerrilla," and I should have had to take a back seat at that, for I spelled it with only one *r*, which was very stupid of me, for I might have known it was derived from "*guerre*," the French for "war." As soon as the contestants spelled a word incorrectly, they either took a back seat, or went off of the stage entirely. Some of the Reporters were very funny about it; when they made a mistake they picked up their coats and hats, hid their faces with the latter, and *scooted*, amid the laughter of the audience. And so, one after another vanished, until about a dozen children were left. Then your Auntie's sympathies were aroused, and I longed to go and comfort each one as some "stumper" proved too much for him or for her, and he or she had to give up the contest. One little boy was amongst the last four—two girls and two boys—and he looked so sorry when at last he failed, that I felt nearly as bad as he did. Then the other boy missed, and back he went. The two girls kept it up for some time, but at last "Khan," (a Persian prince), fell to the lot of one of the girls, and she, unfortunately, spelt it "K-a-h-n;" of course the other reversed the a and h, and became the victor. The first prize was a large handsome Bible; the second, a large fruit cake, which fell to the lot of the little "Kahn" girl. I think these spelling matches are excellent institutions, but if I should get up a spelling match for my *Agriculturist* children, the first word I should propound, would be "NIECE," for fully half of my correspondents spell it incorrectly, "n e-l-c-e."

[We quite agree with Aunt Sue that spelling matches are good things, as you will see they were recommended to the old folks last month, on page 216, for they sometimes can improve their spelling as well as youngsters. The summer months are not favorable for such amusements, but we expect to see them start up again next fall, and be more numerous than ever. Aunt Sue very kindly sent us a list of the words given out at the famous Brooklyn match, and it contains most of the words that people spell incorrectly; this list will keep until the matches begin again; were we to publish it now, it would be lost sight of before it came time to use it. Wouldn't it be grand if Aunt Sue *could* get up an *Agriculturist* spelling match?—We should like to be there. ED.]

Can you Swim?

At one of the colleges a short time ago as the students were practising at rowing, one boat ran against and capsized another, and a fine young man was drowned. In reading of this we were reminded to ask our boys if they can swim. It seems very strange that any one should be training for a boat-race and not know how to swim. Every one of you who is large enough should learn to swim this very month. Of course you will talk with your parents about it, and not do anything that they do not think perfectly safe and proper. They no doubt wish you to learn, and at the same time may think that the place where you wish to go is not safe. So when we say boys and girls should do this or that, we mean always with the consent of their parents. No one who cannot swim should trust himself in a boat—indeed the need of being able to swim is so great that it is not necessary to argue the point. It is easier for boys to learn than it is for girls, but there is no great difficulty in the way if girls wish to learn, and they would feel much safer on the water if they knew that they could, in case of accident, keep themselves afloat. In learning, try to have some older person teach you. Some boys learn at once, while others are a long while about it. The writer learned in this way: there was a place in the river where the bottom sloped very gradually, and one could go out a long ways without getting out of depth. We would wade out until the water was up to our arm-pits, and then turn towards the shore and try to swim to it, knowing that we could touch bottom at any time. It took but a little while to learn. If the hands and all parts are kept under water, a person will float with the face out of water. It is well for those who cannot swim to remember that if they keep perfectly still they will not sink. At the swimming-schools they have a plan which any one can adopt. A band is fastened around the chest to which is attached a strong cord several feet long; the other end of the cord is fastened to a strong pole; the teacher holds the pole and directs the movements of the pupil, who is at the end of the line. A very little aid will keep one afloat, and a band made of stout cloth will answer the purpose. After the pupil learns to strike out properly while held up by the cord, he is gradually taught not to depend upon this. Watching the movements of a good swimmer will teach you more about using the hands and feet than anything that can be written. There are some rules that should always be observed: keep all parts, hands and feet, well under water, and do not be afraid to sink the whole body up to the chin; throw the head well back, and hollow the spine, or back-bone; this allows the weight of the head to come over the chest, which is the lightest part of the body. Learn to breathe through the nostrils; some swimmers make a great sputtering in throwing water from the mouth; it is easy to learn to swim with the mouth shut. Make every movement slowly and quietly; it is a great fault with beginners that they make hard work of swimming, and seem to think that they must make great exertions. Be quiet and you will find that swimming need not tire you any more than walking. Do not go into the water when heated, very tired, or after eating a hearty meal. Finally, when you get a chance, watch the best of all swimmers, and see how neatly and quietly he does it, and try if you cannot swim as well as—a frog!

A Wonderful Cat.

The Rev. J. G. Wood, who writes about animals and their doings, gives this cat story by a lady: Three years ago I had a lovely kitten given to me. Her fur was of a beautiful blue-grey color, marked with glossy black stripes, according to the most approved zebra or tiger fashion. She was so very pretty that she was named "Pret," and was the wisest, most loving, and dainty pussy that ever crossed my path. When Pret was very young, I fell ill with a nervous fever. She missed me immediately in my accustomed place, sought for me, and placed herself at my door until she found a chance of getting into my room, and began at once to try her little best to amuse me with her frisky kitten tricks and pussy-cat attentions. But soon finding that I was too ill to play with her, she placed herself beside me, and at once established herself as head nurse. In this capacity few human beings could have exceeded her in watchfulness, or manifested more affectionate regard. It was truly wonderful to note how soon she learned to know the different hours at which I ought to take medicine or nourishment; and during the night, if my attendant were asleep, she would call her, and if she could not awaken her without such extreme measures, she would gently nibble the nose of the sleeper, which means never failed to produce the desired effect. Having thus achieved her purpose, Miss Pret would watch attentively the preparation of whatever was needed, and then come, and with a gentle purr-purr announce it to me. The most marvellous part of the matter was, her never being five minutes wrong in her calculations of the true time, even amid the stillness and darkness of the night. But who shall say by what means this little creature was enabled to measure the fleeting moments, and by the aid of what power did she connect the lapse of time with the needful attentions of a nurse and her charge? Surely we have here something more than reason?

Nests and Eggs.

Do we think it right to collect birds' eggs and nests?—asks some one. Yes and no—and as a general thing for boys, no. We would not have boys make collections of birds' eggs, just as a matter of curiosity, or to see how many they can get. If a boy is old enough to study Ornithology seriously, then it becomes another matter, but birds are altogether too valuable to have their numbers diminished by a single one, without there are very good reasons for it. The fact that eggs are pretty, and that a collection of them makes a good show, is just no reason at all. All boys, and girls too, should do everything in their power to save and encourage the birds. Even those which take the cherries, and help themselves to strawberries, without waiting for sugar and cream, have been fed on insects when young. Each one has done good service in eating hundreds if not thousands of insects, brought by its parents before it left the nest; and now, after so long a course of animal food, it wishes a little fruit by way of change, it is only because it has fairly earned it. Some persons say that they had quite as lief that the insects would take the fruit in the first place, as to have the birds keep off the insects, and then eat up the fruit to pay for doing it; we don't agree to this, for we can, by a little trouble, frighten away birds, while no amount of scaring will send away insects. But we did not intend to discuss the usefulness of birds, but to say something about their nests. It is very interesting to see the various ways in which birds build their nests, and you can examine these after the brood has fledged and left as well as before, and you will not destroy any birds. Some birds are very careless about their nests, a few sticks and a little hay serving them, while on the other hand, other birds take great pains and weave them very carefully, and line them with the softest material they can get. Look at a King-bird's or Oriole's nest, and see what a wonderful piece of work it is—a regular bag, woven of all sorts of fibres, in the bottom of which the nest is placed. This is a very sociable bird, and likes to build near houses, and if you see any of the birds about, you can leave strings of various kinds where they can find them; when they leave the nest, you will find your strings all nicely woven in with other materials. One of the prettiest and neatest of nests is that of the humming-bird; these nests are not at all rare, though they are very seldom found; the body of the nest is made of the hairy down which grows upon the stems of some ferns, and then it is covered all over on the outside with lichens, (which are often incorrectly called mosses). The nest is usually built in an apple-tree, and looks so much like a lichen-covered knot that it is not often discovered. What a contrast with this is the daub of mud which the barn swallow puts up for a nest. Some birds hardly take the trouble to make a nest at all; a few sticks brought together being the whole. You will find it very interesting to examine the nests of different birds, and to notice the wonderful variety of ways in which they do the same thing—provide a place in which to hatch their eggs and rear their young.

July.

Why do we call this month July? Here we have to remember another ancient Roman; this time it is Julius Cæsar, and the month was named in his honor because he was born in it. This is better than naming a month after heathen gods and goddesses, for J. C., as every boy who has studied Latin knows to his sorrow, was a great general in his day, and his work describing his wars is one of the Latin school books. He was murdered by assassins, and almost every big boy has spoken the piece beginning "Romans, countrymen, and lovers! Lend me your ears," which Shakespeare makes Mark Anthony say over his body. Who thinks of Julius Cæsar now—he's nothing to the Fourth of July, for which this month is particularly remembered by all patriotic youngsters.

Saved by a Fish.—Sometimes a very trifling thing will do a great deal of mischief. Here is a story showing that a trifle may save a great many lives. The captain of the bark Providence, states that during his voyage to Dantzic, the ship sprang a severe leak, and his crew were all but exhausted in their efforts at the pumps to reduce it. One day she suddenly stopped making more water, and in time reached Dantzic safely. After the discharge of the cargo, a search was made for the leak, and a hole was found in the center of one of the after-planks, from the yielding of a knot in the wood; in this hole there was wedged a dead fish, which coming against the bottom of the vessel when alive, at just the spot where the hole was, had stopped the leak and saved the ship and crew.

Answer to Puzzle Picture 444, in May No.—To see the "Old Man of the Mountain," turn the picture so that the right-hand side will be the top. The trunk of the tree forms the outline of the top of the head; the bleak looking hills, his long hair; the distant fence makes the outline of the face and beard; the ear of the right-hand (now uppermost) sheep, the eye; the nose is formed by the space between the neck of one sheep and the tail of the other; and the ear and mouth by little marks not noticed when looking at the picture as it is placed in the page. We think the artist who did this will have to try many times before he makes a better puzzle picture than this "Old Man of the Mountain."

Aunt Sue's Puzzle-Box.

CHARADE.

A native of a foreign land,
One whom we often see,
Receives this name on every hand,
And this my first will be.

What do we all, from Childhood up,
At morning, noon and night,
Whene'er we breakfast, dine or sup?
My second answers right.

My third, one who, when George was king
And ruled with tyrant's sway,
To Freedom's cause did closely cling
In her most gloomy day.

In eastern wilds there grows a plant
Which yields a perfume sweet,
Although in outward beauty scant:
Behold me now complete. HENRY.

SQUARE WORDS.

1.—1. Circumstance. 2. Powerful. 3. A clique. 4. To contribute. HERBERT J. K.

2.—1. A title. 2. An ornament worn by a high priest. 3. Animals. 4. A large bird which cannot fly. MOCKING BIRD.

CROSS ACROSTIC.

The center letters, horizontal and perpendicular, name a county in Pennsylvania.

1. An animal. 2. Depravity. 3. Was a Jewish priest. 4. Affectation. 5. Mountains in the United States. 6. A point of the compass. 7. A boy's nickname. 8. A boarding-house. 9. An answer. STAR STATE.

EVIDENCES OF GUILT.—*Engraved for the American Agriculturist.*

CROSS WORD.

My first is in poet but 'tis not in verse,
My next is in package but 'tis not in purse,
My third is in primrose but 'tis not in pink,
My fourth is in paper but 'tis not in ink,
My fifth is in porcelain but not in a mug,
My sixth is in camphor but not in a drug,
My seventh's in regal but not in the Queen,
My eighth is in homestead but not in demesne,
My ninth is in songstress, delightful to hear,
My whole will complete a far-famed one—
in clear. M. E. P.

NUMERICAL ENIGMAS.

1. I am composed of 13 letters:
My 2, 5, 11, 9, is the name of a river in the U. S.
My 6, 7, 8, 4, is a vehicle.
My 13, 12, 1, is a girl's name.
My 6, 2, 10, 9, 3, is a beauty caused by the sun.
My whole is one of the United States. ELLA G.

2. I am composed of 30 letters:
My 18, 3, 23, is an animal.
My 14, 6, 16, 30, is an article of clothing.
My 2, 19, 5, 28, is a bird.
My 25, 4, 23, is a receptacle.
My 10, 1, 27, 17, is baked in the oven.
My 21, 26, 9, 13, is a fruit.
My 11, 29, 12, 3, is always very cold.
My 24, 20, 22, 7, 15, may vary in price (though of the same size) from nothing to a thousand dollars and more.
My whole is a well-known proverb.

3. I am composed of 36 letters:
My 1, 2, 6, 3, 26, 22, 18, 9, 23, is a reptile,
My 4, 26, 7, 8, 36, 30, is a part in music.
My 14, 15, 25, 29, 34, 35, 26, 21, is complete.
My 20, 19, 31, 32, is tidy.
My 33, 5, 7, 27, 12, 11, we should all be.
My 1, 10, 13, 24, 30, is a kind of mud.
My 16, 17, is a preposition.
My whole is a quotation. DENVER C. T.

PUZZLE.

Take five hundred and fifty, One hundred and nothing,
And put them in order together,
A word you will find, which I think I may say
Is often applied to the weather.

WILD-FLOWER ANAGRAMS.

1. I bit Ursula Grant.
2. O lone molasses!
3. Friend Cora Wall.
4. About Mayweed.
5. Lo! Ann died.
6. Eloise Frost.
7. A sure hat.
8. Lord Ogden. M. G.

ANAGRAMS OF THE NAMES OF THREE CELEBRATED PHILOSOPHICAL WRITERS.

Cool ye black bone. CARTER.

ANSWERS TO PUZZLES IN THE MAY NUMBER.

ANAGRAMS.—1. Unconsidered. 2. Contusions. 3. Bludgeons. 4. Encompassed. 5. Ingredients. 6. Aforesaid. 7. Redundancy. 8. Accomplished. 9. Diffuseness. 10. Parliamentary.

BIBLE EXERCISE.—Abner. Bathsheba. Chloe. Damaris. Eschol. Felix. Gihon. Hiram. Iscariot. Jacob. Kirjath-Jearim. Lycaonia. Nathaniel. Obadiah. Paul. Rhoda. Smyrna. Trophimus. Uzziel. Vashti. Zachariah.

CHARADE.—Mayor; May—or.

NUMERICAL ENIGMAS.—1. Truth is mighty and will prevail.—2. Washington.

ACROSTIC.—1. Lewellyn. 2. Eddy. 3. Alexander. 4. Rankin. 5. Nautical. 6. Turtle. 7. Otho, Greece. 8. Knife. 9. Nerve. 10. Ogdensburg. 11. Wasp. 12. Trite. 13. Hornet. 14. Yell. 15. Stocking. 16. Engraving. 17. Lithograph. 18. Firth.—Learn to know thyself.

CONCEALED STATES AND COUNTRIES.—1. Peru. 2. Ireland. 3. Ohio. 4. Oregon. 5. Siam. 6. Idaho. 7. Spain. 8. Iceland.

DECAPITATION.—Shaft, haft, aft.

CROSS WORD.—Arabian Night's Entertainments.

PI.—Happy is he who can take warning from the mishaps of others.

SQUARE WORDS.—1.

A S T E R	
S T O V E	
T O K E N	
E V E N T	
R E N T S	

2.

S P A I N	
P R I D E	
A I S L E	
I D L E D	
N E E D Y	

Thanks for letters, puzzles, etc., to M. Jennie H., Mechanic, J. A. McG., R. D. Gage, Alpha, Beta, Sphinx, (such a generous lot, so nicely prepared and so modestly offered!), J. F. W., Harry L. S., Effie Y., and S. Martin.

Send communications intended for Aunt Sue to Box 111, *P. O., Brooklyn, N. Y.*, and *not* to 245 Broadway.

Oh yes, master Tip, you think you have done a fine thing, don't you? You know that you have been in mischief, your face shows it just as plainly as if you could speak. Yes, sir, and what is worse, you don't look a bit sorry. If you were a poor starved cur, there might be some excuse for you, but when you are properly fed, to go and just out of mischief kill the old hen is too mean even for a dog.—When we saw this picture, the first thought was, that is a picture that will please a great many of our *Agriculturist* boys and girls; so we had it engraved, and here it is. Even those too young to read can understand what the artist meant to show, and older ones will admire the cleverness with which it is done. It is said that animals have no reason, but they must have something very much like it. Did you ever notice the different expressions in dogs, and how differently they look when they have done something for which they expect praise, from what they do when they know they have done wrong, and deserve a scolding, if nothing more? The dog in the picture has an amusing expression, as if he pretended to know nothing about what had happened to the old hen, at the same time he is chuckling over the nice meal she made. Then the poor little orphaned chickens, how their distress makes a sad side to the picture, and contrasts strongly with the "I don't care, I am glad I did it, only I hope I won't get found out," written as plainly on the dog's face as can be.—"Found out"—master Tip—such things are always found out. Smart as you think you are, you are a very stupid dog. You havn't sense enough to remove those tell-tale legs, which show as plainly as can be what has become of the old hen. You'll catch it—and you deserve it, too.—It is just so not only with dogs, but people who do wrong; yes, and young people, too. They think that they can do some forbidden thing, and not be found out—their cunning lasts while they are doing it, but they are sure to leave the *legs*, or some other silent witness, in sight.

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It receives the ears as pulled from the stalk, husks and silks it perfectly clean. This machine husks rapidly, propelled by horse or hand-power. Machines supplied from Huntington Machine Works, 135 Halsey St., Newark, N. J.
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THE ATTENTION of the Farmers is respectfully called to B. F. Randell's justly celebrated Improved Fanning Mill, Seed Cleaner, Grain Separator and Grader combined, a recent invention which has attracted very marked attention throughout the Central and Western States, where it has been introduced, and which is now being manufactured for the EASTERN States, at Auburn, N. Y., and Harrisburg, Pa., as below.

Until the invention of the "Randell Grain Separator" all machines for cleaning grain known as "Separators," have been at the best mere SEED CLEANERS, too expensive for general use and altogether too slow, complicated and impracticable for the general purposes of a fanning mill. Therefore, for the information of those who are looking for something cheap, rapid and practicable, the undersigned respectfully submit the following extracts from testimonials of farmers and grain men to the merits of the Randell Improved Seed and Grain Cleaner or Separator and Grader.

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"This 26th day of May, I tested the RANDELL SEPARATOR in my Granary, and it proved to have important advantages over the present Fanning Mills; so much so that I gave my order for one, notwithstanding I have at this time two of the other mills. ALFRED HALE."

"It is the only real Separator, Cleaner and Grader in the United States.

"It works upon the principle of GRAVITY, an entirely NEW PRINCIPLE in grading grain, which gives the farmer perfect control of Cleaning, Separating or Grading his grain, and works to perfection.
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☞ Be sure and read editorial in the COUNTRY GENTLEMAN of May 13th.

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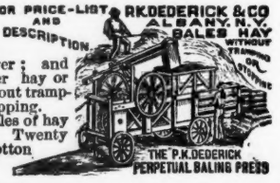
ADDRESS FOR PRICE-LIST AND DESCRIPTION.



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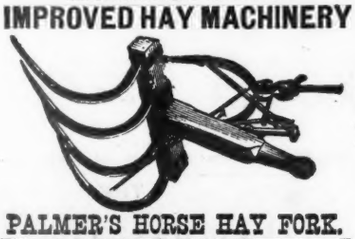

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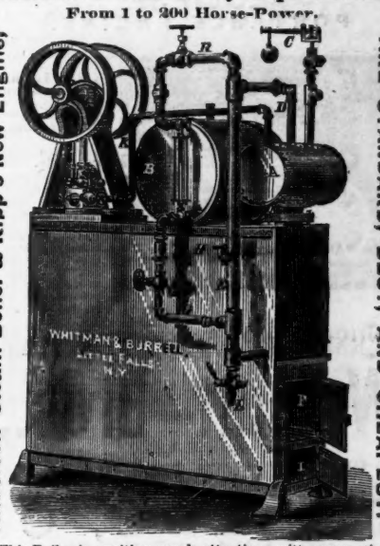

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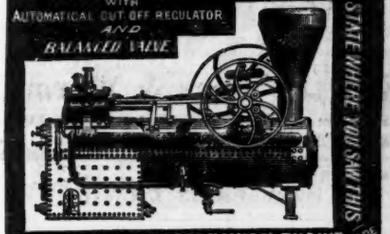

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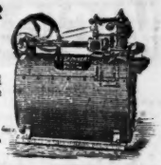

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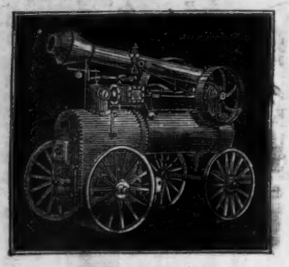

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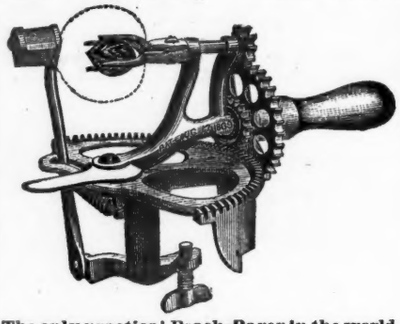

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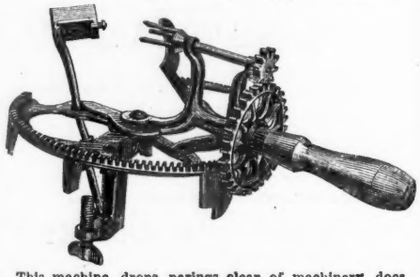

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By Prof. GEO. H. DADD,

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This is a fresh book, the result of a lifetime of labor and research on the part of one of the foremost Veterinarians of the age. Years ago, Dr. Dadd perceived that incalculable loss was being entailed upon stock owners every year by the reckless, unnatural, unscientific, and cruel modes of treatment which were so generally practiced upon the Horse. **Burning, Blistering, Bleeding** by the gallon, and the giving of **Poisonous Drugs** were the order of the day (and we are sorry to say such practices still find learned (?) advocates even in our day), and the result was that they *killed more than they cured.* Actuated by a laudable desire to rescue so noble an animal from such "heroic practice," Dr. Dadd adopted and strenuously advocated the Reformed System of Practice, which, under the guidance of such men as Wooster Beach, John C. Gunn, and others, rose rapidly into popular favor in human practice, and demonstrated beyond a doubt that *nature's remedies* are the most uniformly successful. Such was Dadd's success that he became widely known, and it was no unusual thing for him to be sent for, hundreds of miles, to attend valuable horses. His career as a practicing Veterinary Surgeon has been one of rare success, and deeming it his duty to spread abroad among his countrymen a knowledge of Reform Principles, as applied to the Horse, he has prepared this work, and asks that it be candidly examined. Being a thoroughly American Work, it quotes foreign authors but very little. It aims to treat fully and plainly, on rational principles, every ill that Horseflesh is heir to, including those **complaints peculiar to this country,** and which have hitherto been but very imperfectly treated of by authors aspiring to be educators of the public on Veterinary Science.

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containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

Continued from p. 251.

Short-horn Breeders' Convention.—The Short-horn Breeders' Convention was held at Indianapolis on the 26th of May. The attendance was good, and several papers of great interest were read.

Black-faced Scotch Sheep.—"P. M. B.," Dixon County, Neb. It would hardly be advisable to go to the expense of importing the black-faced Highland sheep, although they are hardy and prolific. A cross of the Cotswold upon our common native sheep would be as good a breed for our purposes as the Scotch, and by a few years careful breeding a very useful sheep might be established.

Parvin's Steam Motor.—"J. K.," Marshall Co., Kansas. The steam motor of Parvin is not a plow, but simply a locomotive engine to draw plows. We suspect it is not a success, as we hear of none being in use. A steam plowing engine that is practically successful upon other lands may very probably fail upon prairie soils that are wet, sticky, and slippery, and where sloughs have to be passed through. And this is the difficulty that so far has not been overcome. A plowing engine with plows costs $8,000 or over.

Poultry Raising.—"Subscriber," Jacksonville, Fla. Keeping poultry in flocks of 400 or 500 is not a safe business for a new beginner. It is safer to begin with 50 and gradually increase as knowledge of the business is gained. Poultry-houses suitable for a large business are described and illustrated in the *Agriculturist* of June, 1873, and June, 1874. These houses should not be increased in size, but in number to suit the size of the flock. The Brahma is the best fowl for all purposes. One acre is needed for every 100 fowls.

Scours in Calves.—"P. Y.," Walworth Co., Wis. A remedy for scours in calves is an ounce of carbonate of magnesia or prepared chalk, mixed with half a pint of water, in which a teaspoonful of flax-seed has been boiled, and a little essence of peppermint added. It may be given before feeding in the morning, until the diarrhœa is stopped.

Cheese Factories in Illinois.—J. S. Hatch, Kendall Co., Ill., writes that he has just started a cheese factory, and that the following factories are running in his neighborhood. Two, besides the one mentioned at Little Rock, one at Plano, one at Sandwich, one at Somonauk, one at Freeland, others at Sugar Grove, Montgomery, Hinckly, and elsewhere, and all within a radius of ten miles. This is very encouraging, and points to an improving condition of agriculture in that district, which is worthy of imitation elsewhere. The increasing demand for cheese will make many more factories necessary, and there is great room in the west for them. We shall be glad to hear again from Mr. H.

"Braxy," or Anthrax Fever in Sheep.—"S. J. H.," Alabama. This disease is similar to black-leg, or quarter-ill in calves or cattle, and cholera in hogs. It is a blood disease, resulting sometimes from over feeding; in this case probably too much cotton-seed has caused it. The lameness and stiffness in the hinder parts, constipation, with dark colored and deficient urine, bright staring eyes, carrying the head up and to one side, and grinding of the teeth, are constant symptoms of this complaint. There is no remedy if the latter symptoms have appeared. Four ounces of epsom salts should be given as soon as the ailment is discovered, and afterwards 20 grains of salpeter daily, for a week. Injections of warm soap and water or linseed oil, should be given until the bowels are relieved.

Feeding for Milk.—"C. G. T.," Clinton Corners, N. Y. A very good feed for milch cows is two quarts of corn-meal and two quarts of wheat, or rye, bran, or shorts, twice a day. Where brewers' grains can be procured cheaply, or less than 15 cents a bushel, they are very productive of milk. Half a bushel of grains and three quarts of corn-meal twice a day, are fed in some milk dairies with profit, when milk is four cents a quart. When malted corn has been used in the brewing along with the barley malt, the grains are much more valuable.

The Best Cows.—"J. B. M.," Hagerstown, Md. The best dairy cow for family purposes, is a high

grade (three-quarters or seven-eighths) Jersey, from a really good native cow by a Jersey bull, from good milk and butter stock. Such a cow may be expected to yield a pound of butter a day, on an average, for nine months in the year, or about 280 pounds of butter a year. We have had several such cows that have done better than that. The best dairy book is Flint's Milch Cows and Dairy Farming, price $2.50. For general dairy purposes the Ayrshire, Short-horn, and Dutch breeds, and their grades or crosses are highly valued.

Sales of Short-horns.—The sales of Short-horn cattle which have occurred during the past month have amounted to 376 head, for an aggregate of $178,300. Of the six herds disposed of, four were sold at Dexter Park, Chicago, which from its central position in the vicinity of the Union Stock-yards, has become a favorite locality for both sellers and buyers. The sales at Dexter Park were not so well attended as former ones. The sales were as follows: by

L. W. Towne.....	29 cows for	$20,095 ;	average, $634.
.....	11 bulls "	2,390 ;	average, 218.
J. P. Sanborn.....	43 cows "	19,950 ;	average, 454.
.....	10 bulls "	1,685 ;	average, 168.
Avery & Murphy.....	63 cows "	39,140 ;	average. 621.
.....	12 bulls "	11,045 ;	average, 920.
J. R. Shelby.....	78 cows "	29,235 ;	average, 375.
.....	12 bulls "	1,440 ;	average, 120.

The herd of Chas. Lowder was sold at the State Fair Grounds, Plainfield, Ind., for very low prices.

46 cows brought $7,700 ; average, $171.
19 bulls " 2,045 ; average, $107.

General S. Meredith & Sons' sale was held at Cambridge City, Ind., and very good prices were obtained ; over 2,000 persons were present.

42 cows sold for $41,140 ; average, $980.
11 bulls " " 2,835 ; average, 257.

Two cows, Mazurkas, were bought by an English breeder for $5,600. Mr. A. J. Alexander, of Kentucky, has sold at private sale to go to England, two cows of the Duchess family for $35,000, and one Duke bull for $12,000.

Patent Machines.—"J. T.," La Crescent, Minn. No person may lawfully make any patented implement even for his own use, without a license from the owner of the patent.

"Walks and Talks" Correspondence.

No Pay Required.—"C. A. D.," of Mass., asks me several questions, and says: "please answer and send price for your trouble."—The *Agriculturist* pays me for my trouble in answering these questions, and "C. A. D." pays the *Agriculturist* when he subscribes for the paper. But to the questions: The first is in regard to

Hens in the Orchard.—"I have got two orchards, half an acre each, trees 15 to 20 years old. Keep 300 hens. Would you fence in the orchards and keep the grass out, and let the hens run in them?"—If this was a convenient arrangement I should certainly do so. But I should not do it simply for the purpose of enriching the land. The food you furnish the hens will enrich the land just as much as if it was fed to sheep or swine—and no more. The insects which the hens catch on the wing would be so much gain, and if the hens pick up worms which would otherwise leave the orchard, that is a gain also. Otherwise I think the hens are no better manure-makers than cows, horses, sheep, or swine.

Manure from a Slaughter-House.—"C. A. D." lives five miles from a slaughter-house "where they kill hogs and make some very good manure. They take the offal and the heads, and cook them for the oil, and what is left they sell for $6 per cord. If you were going to use it, would you work it up with vitriol?"—I think not. I should draw out my barnyard manure in the winter to the field where I intended to use it, and draw the slaughter-house manure at the same time, and put them together in a pile. Make the pile 7 or 8 feet wide, and 6 feet high, being careful to build up the sides straight, so that the heap shall be nearly or quite as wide at top as at the bottom. If possible finish the heap up to the desired hight every day, and not spread it over a long heap where it will be likely to freeze before morning. The slaughter-house manure will greatly favor fermentation, and you can use it in this way to great advantage. Turn the heap when necessary. The soil below the heap will not be frozen, and you can dig up a foot or so of this soil and mix it with the manure, or put it on top. I have been using several large heaps of manure this spring for root crops and for potatoes, which were drawn to the field last winter and piled—it was in capital order. But be sure and keep the sides up straight, and not drawn in like the roof of a house. In the latter case the wind and frost will go through the narrow top and freeze it solid. If well built it will ferment slowly all winter, and be in prime order for use in spring.

"How would you use the Blood?"—Add it to the heap of manure. It is a rich fertilizer, and will greatly aid the fermentation of the manure. There is no danger from excessive and injurious fermentation in the winter. In fact the difficulty with cow manure is to get it to ferment at all, and to keep out the frost from the heap.

More Grass and less Wheat.—This is what a young farmer in Cumberland Co., Pa., wants. He has bought a farm of 150 acres, two miles from a railroad station ; large bank-barn and other buildings, for $5,000. The land was all limed 12 years ago. He can buy lime at 8 cents a bushel. The rotation previously adopted on the farm was, 1st., corn on two or three year-old clover sod. 2d., oats. 3d., wheat. 4th., wheat again. 5th., clover. Average yield, wheat 10 to 12 bushels, oats 20 bushels, corn 20 to 25 bushels per acre.—This will not do at all. There is no profit in such farming. Lime and clover must be the basis of improvement. Give up the second wheat crop. If the land is foul, I should try how it would answer to "fall-fallow" a clover sod and sow it to oats the next spring, and seed down with clover. Barley would be better than oats, and with lime so cheap, it would seem not a difficult matter to raise barley on a fall-fallowed clover sod dressed with 100 bushels of lime per acre. Such treatment ought to give 40 bushels barley per acre, and a grand crop of clover afterwards. A clover sod, pastured until June, or July, might be broken up, and the surface soil thoroughly worked afterward four or five inches deep, with a cultivator and harrow. Then lime it and sow wheat, and seed down with timothy in the fall, and clover in the spring. If the land is thoroughly worked and limed, I should not only expect a fair crop of wheat, but a good crop of clover afterwards. Clover sometimes fails on clover sod, but it is generally because the land is not well worked. By raising more grass or clover, you can keep more stock, and if you get good stock, you can afford to buy bran and oilcake, and thus make rich manure, and then you are through with your difficulties.

Clover for Hogs.—"T. A.," Hawk Point, Mo., writes: "I have six acres of clover and six acres of oats. Will this keep 30 pigs, which are intended for fall market?"—I suppose Mr. A. intends to let the pigs pasture on the *oats* as well as on the clover. I have had no experience with oats as a pasture for pigs. I should think it would be better to confine the 30 pigs to the 6 acres of clover, and feed them corn in addition. The corn should be fed regularly, say morning and night—and always at the same hours. If fed irregularly, the pigs will be looking for it all the time, and will not eat much clover. If you feed the corn in the ear, I would take it to different parts of the field, and not feed every day in the same place. The corn would be better, I think, if shelled and soaked in water for 24 hours before feeding.

Sending Stock by Express.—"D. S.," Ind. The express companies charge more for carrying live stock than for ordinary merchandize. For a box of pigs weighing less than 100 lbs., they charge *double* the regular rates ; for a box weighing over 100 lbs., one and a half the regular rates. Thus from Rochester to Indianapolis, the regular rate is $3 per 100 lbs. For a pair of 2-months pigs, weighing, with the box, 85 lbs., the charges would be $5.10. For a trio of pigs weighing 115 lbs., the express charges would be $5.17. Sliced mangels make excellent food for them on the journey, as they furnish both food and water. I have shipped several hundred to different parts of the country—some to Texas, Louisiana, Arkansas, Mississippi, etc., and never lost a pig on the journey. I have no fault to find with the express companies, except that they charge more for stock than for dry goods. For a year or more the American Express Co. carried my stock at the same rates as ordinary merchandize, but the U. S. Co. objected to their doing so, as being contrary to an agreement between the two companies. Both companies now charge alike, there being no competition ; but they take excellent care of the stock, and carry them through on their fastest trains. The stock often reaches its destination two or three days before a letter mailed at the same time. On the whole we have not much to complain of.

Map of a Farm.—John Landreth, Manitowoc, Wis., in answer to some questions of mine in regard to his farming operations, sends me a printed map of his farm. It is a capital thing to have. The fields are all numbered, and the length and breadth are noted on the map, with the number of acres.

Getting out Stones.—Mr. L. is trying, like myself, to free his land from stones. He draws them four miles to the harbor at Manitowoc, getting pay for them, and drawing back a load of manure. This is a good thing to do, too. Mr. L. tells me of a plan which I shall try to get adopted on my own farm. He says: "In plowing last fall we strapped on each plow handle pieces of shingles two inches wide, and where a stone was struck, and could not be moved by the plow, a shingle was stuck in, marking the spot, and a man with spade and bar followed at intervals and brought them to light. In this way our land to-day is clean, and not a stone or stump to be seen on 110 acres of last fall's plowing, and our gang-plow, drill, and other labor-saving implements can be safely used."

Rolling Coulter Plow.—Mr. L. speaks very highly of the large-rolling Coulter Plow, and also of Cassidy's Gang Plow. I am not acquainted with either, but have never yet had a Gang Plow that was satisfactory. I have one which does not draw true, and the result is that the last plow takes a very narrow furrow. It is made of cast-iron, and there is no way to change the line of draft.

Growing Ruta-Bagas.—"A. F. G.," Barry Co., Mich., has eight acres of land, two of which are occupied with the house and gardens. Of the other six acres, one acre is good strong land, and the rest sand and gravelly clay. He finds ruta-bagas and onions his best paying crops, and he wants me to tell him how to manage to grow ruta-bagas. Last year he sowed three acres and kept the land clean, but owing to the dronth had only 100 bushels per acre. He can buy 50 loads of manure in town, and keeps one horse and one cow.—Onions will do well every year on the same land, provided it is well manured and kept clean. But ruta-bagas do better in rotation with other crops. Still, they *can* be grown year after year. In such a case, I should plow the land in the fall after the turnips were off, and draw out the manure in the winter and pile it in the field, and to each load or ton of manure add 100 lbs. of bone-dust scattered on, or slaughter-house manure, or, instead of this, sow 300 lbs. of superphosphate of lime in the drills at the time of sowing the seed. If you must confine yourself to these two crops, onions and turnips, I think it would be well to make the land very rich for onions with well-rotted manure, and then sow turnips on this land the next spring, using 300 lbs. of superphosphate to the acre—and if possible drill it in with the seed. The superphosphate will give the young plants a rapid start, and soon push them out of reach of injury from the little black beetle. You ought to raise from 800 to 1,000 bushels per acre. Sow in rows 20 inches apart, and thin out to 10 or 12 inches in the row.

Value of Bran for Manure.—"A. B. F.," Columbia, Conn., writes: "When speaking of bran in 'Walks and Talks,' what quality do you mean? We have in our markets a very coarse quality called 'shorts'; a very fine grade called 'white middlings,' which is nearly or quite as heavy as corn-meal, and costs the same. Then there are intermediate grades, differing in fineness and price. There is one grade which looks like shorts, ground over and made fine. [This is precisely what it is.] What I wish to know is which of these grades you mean when you say bran in speaking of the value of manure made from different kinds of food?"—Mr. Lawes gives the composition and value of these different grades of wheat-bran as follows:

	Per Cent.					Value of Manure from one ton of food.
	Total Dry Matter.	Mineral Matter, (Ash).	Phosphoric Acid reckoned as Phosphate of Lime.	Potash.	Nitrogen.	
Wheat Bran	86.0	6.60	2.95	1.45	2.55	$14.59
Coarse Pollard	86.0	6.20	2.52	1.49	2.38	14.36
Fine Pollard	86.0	5.60	2.44	1.46	2.60	15.53
Wheat	85.0	1.70	1.87	0.50	1.80	7.06
Oats	86.0	2.8	1.17	0.50	2.00	7.70
Corn Meal	88.0	1.30	1.13	0.35	1.80	6.65
Peas	84.5	2.40	1.80	0.9	3.40	13.39
Clover Hay	84.0	7.50	1.25	1.30	2.50	9.64
Wheat Straw	84.0	5.00	0.55	0.65	0.60	2.68
Linseed Oil-cake	88.0	7.00	4.92	1.65	4.75	19.72
Decorticated Cotton-Seed Cake	89.0	8.00	7.00	3.12	6.50	27.86

It will be seen from the above that there is little difference in the manurial value of the different kinds of bran. The wheat itself is only worth about half as much for manure as the bran, and wheat flour would be still less valuable. Wheat has been so low the past winter, and coarse grains and bran so high, that the millers have been making "white middlings" with an unusually large quantity of flour in them. These would not be as valuable for manure as the ordinary shorts, canaille, shipstuff, and other grades of bran. As a rule, the feeds best for manure are not the most nutritious—at least I think so. Some people would have us believe that bran is more nutritious than flour, but such is not the case. It is, however, far better for manure. * * * "When speaking of cotton-seed meal, do you mean that which is decorticated, or that which contains all the hulls?"—I mean the former, unless otherwise stated. The manure from a ton of cotton-seed itself, after being ground and sifted, is worth $13.25 ; that from undecorticated cotton-seed cake $15 75. In grinding cotton-seed and sifting it for food, 8 per cent of husk was removed. Mr. Lawes found it a rich and valuable food for sheep, in connection with fodder, etc. For the sake of comparison, I have included some other common foods in the table above.

Mixing Earth with Manure.—"J. R. L.," Schuylkill Co., Pa. By mixing earth with manure, it will certainly be kept from over-heating or dry-rotting. But the same effect may be procured by turning the manure over when it becomes hot two or three times. This is not so much labor as carting earth to the heap and then carting it back with the manure to the field.

How to Feed Breeding Sows.—"Mr. F. B.," Gallipolis, O., writes: "I have a fine two-year-old imported sow. She is in pig by an imported boar. I paid $90 for her, and wish to raise good pigs. The sow is as "thin as a rail," and I want to ask your opinion, whether it will hurt her to make her pretty fat. If she is as poor when she farrows, as she is now, there will be nothing to suck."—Our own rule is to keep breeding sows in good, thrifty condition, but not too fat. When in pig the sows should have as much exercise as possible, and nearly or quite as much food as they will eat. If the sow is fat, give her a stomach full of food once a day, but let the food be of a bulky and innutritious kind, such as turnips, grass, bran, brewers' grains, and slops from the house. A sow not so fat might be fed the same food twice a day. If the sows are not in good, thrifty condition, give fine middlings instead of bran—all they will eat. If very thin, feed still richer food, such as skim-milk, fine middlings, and say half a pint of corn meal or oil-cake meal per day. Cook and feed in the form of warm slops, two or three times a day. As a general rule, well-bred sows have a tendency to store up fat, rather than to produce milk. We do not think starving them will make them any more likely to give milk. A highly refined, thoroughbred, sow can not stand as great a tax on her strength and constitution, as a coarser and less refined sow. Her strength, or force, has been diverted from the natural tendency to propagate the species, to the rapid accumulation of flesh and fat. If such a sow is as thin as the one described by F. B., it is probable that she was allowed to breed too early, or too rapidly. It would be well, in such a case, to let her have a litter only once a year. Feed her moderately well, and let her husband her strength.

Corn for Soiling.—"L. S. A.," Decatur, Ill. Corn stalks will not sprout from the roots if cut when they are mature, but if late planted corn is cut when partly grown, it will sprout or sucker. Sprouts are not worth depending on for a soiling crop, as there are several things that may be brought in at that season. Corn fodder ought to be cut when it is in tassel or blossom, and as near the ground as possible. Other crops, such as rye sown early and pastured, for instance, should be ready to follow the corn, or a succession of corn plantings which will last until frost arrives, when turnips or beets ought to be ready.

To Make a Compost Heap.—"H. B.," Chicago, Ill. There is no need to dig a trench or plank up a space for a compost heap, nor to cover it with a roof. Such a heap needs all the rain that falls upon it, to provide sufficient moisture for its decomposition. Cemented barn cellars for manure, are useful under some circumstances, but there are many objections to them.

Dry Climates.—"J. H. E.," Toronto, Canada. The dryest climates of the United States are found in Colorado, Utah, and California. Of these places probably the most preferable is Colorado. There are several successful colonies, established originally on the coöperative plan, but now self-dependent, which offer opportunities for new-comers. The industries followed are mainly farming, gardening, and stock-raising. Greeley and Fort Collins are two of these established enterprises, where persons, seeking a dry climate for their health, would find cheap homes and congenial associations. The cultivation of the soil there is wholly by irrigation.

The Cheapest Fence.—"F. A. S.," Montgomery, Ala. The cheapest fence is the most permanent one. A post and board fence, or post and rails, mortised together, made of chestnut or cedar posts, and chestnut rails or boards, will last 40 years. We know of several fences, now good, that are as old as that. But the posts should be charred at the bottom, well seasoned, and the post-holes should be filled with stones, instead of earth. The fence also should be capped with a board laid sloping, to shed rain.

Windmills for Irrigation.—We are asked the following questions: "How much power is a 12-foot windmill supposed to have in an ordinary wind?" (*Ans.* About one horse-power). "How much power would be required to force water through a 1½ inch pipe, into a reservoir fifty feet from the windmill, and twenty-five feet above the water in the well?" (*Ans.* Considerable water would doubtless be forced by a 6-foot mill; an 8-foot mill would supply 50 head of cattle; a 10 or 12-foot mill would furnish a very large amount). "In watering strawberries, etc., with a reservoir and pipes, what size of hose is generally used?" (*Ans.* Three-quarter inch or 1-inch). "How much land can a man water in ten hours, and give the ground a good soaking—say ½ inch of water all over it?" This last question is not easy to answer with accuracy. To cover an acre of land half an inch deep, would require about 12,500 gallons. With a cylinder 3 inches in diameter, and a stroke of 6 inches, the pump making 60 strokes per minute, there would be delivered about 11 gallons per minute, or about 15,000 gallons in twenty-four hours. It would be fair to suppose that such a pump, driven by a 12-foot mill, in a reasonably well exposed situation, would average twelve hours per day in work, giving 7,500 gallons, or enough for rather more than half an acre of land. If the irrigation is to be carried on so extensively as this, that is, with such a considerable flow of water, it would be cheaper and better to adopt a regular system of grades, allowing the water to overflow the land from ditches, as is done in all regular irrigation works. It would, in this case, be necessary only to have a large storage capacity for water, and this need not be elevated above the highest point of the land to be flowed.

"Egg Oats."—"E. H. M.," Danbury, Conn. The oats in which eggs are packed, are generally damaged by rotten eggs, broken in the barrel, or are light, inferior oats, chosen for this purpose. They are not proper feed for horses, and are generally used for poultry or pigs. On account of their inferiority they are sold at a low price.

To Decompose Tanners' Waste.—"A. R.," Warren Co., Pa. Hair and fleshings from a tannery should not be spread upon a meadow when fresh. They dry up without decaying, and will be raked up with the hay. The hair is difficult to rot in any way. If the waste is mixed with stable manure and the heap turned over occasionally, all but the hair will be decomposed in a few months, but that will remain a great while. We have found the best method of using this waste, to spread it upon the sod to be plowed for corn, or upon the oat-stubble to be plowed for wheat. We have seen it spread upon a meadow in the fall, and after exposure to the rains for half a year, there was scarcely any of it to be seen on the ground.

To Decompose Straw.—"J. S. H." If a bushel or two of quicklime is put into a straw stack, it may, as soon as it gets wet, set fire to and destroy the stack. This is probably not the sort of decomposition you want. To reduce the straw to manure by means of lime, it should be scattered until thoroughly wetted, and then heaped up with about ten bushels of dry slacked lime to the ton of straw, well intermixed. The heap should be exposed to the rain, as moisture is needed to assist the rotting, and considerable heat is evolved.

Treating a Fistula.—"L. H. T.," Buckland, Mass. A fistula cannot be cured by medicine given internally. It requires mechanical treatment. The "pipe" must be destroyed by injections of mineral acids, and the sore then carefully healed from the bottom. It would be best to apply to a veterinary surgeon, and not use a hot iron, which might do mischief. To breed a mare at two years of age is too early—she should be fully grown.

Uniform S. S. Lessons—Origin.—A series of Sunday School Lessons is now in use throughout this whole country, and largely in Europe, each denomination giving its own accompanying notes and explanations. It is a beautiful idea that on every Sunday millions of children are all studying the same Bible lesson. The N. Y. Independent quotes with endorsement this from the Presbyterian: "....Without doubt this Uniform Lesson movement has done more to stimulate Bible study in school and at home than any one event in the history of the Sunday School or perhaps in the history of the church."....In 1849 Mr. ORANGE JUDD prepared a series of Sunday School Lessons, and placed them against the church wall near the pulpit, so that the people would all have the lesson for each Sabbath prominently before them. This led to more careful study of the lessons at home. Following up the idea, in 1859-60 he had prepared a series of 52 lessons, entitled "*Lessons for every Sunday in the Year*," embracing connectedly the leading events in the Four Gospels and Acts. These were first printed in the *American Agriculturist* 14 years ago (1861). They were widely adopted; hundreds of thousands of cards containing them were printed for distribution, and many religious journals copied them. This was the *beginning* of the use of Uniform Lessons. Three other series, of 52 lessons each, were afterward prepared by Mr. Judd, and in 1862 a Lesson and Question Book on the first series of Lessons was issued, in which Mr. Judd was largely assisted by Dr. James Strong, S. T. D., and Mrs. Dr. Olin. The copy-right was presented to a Sunday School Publishing House, and nearly a million copies were scattered through the country. The first school adopting them was that of Dr. Alexander, N. Y., Presbyterian; the second that of Dr. Porter, Brooklyn, Reform Dutch, and then they went almost equally into the schools of various denominations. As an indication of the religious but unsectarian character of these books, Mr. Judd received many letters from Baptist, Congregational, Methodist, and Presbyterian clergymen and teachers, all supposing him to be a member of their individual organizations. Three other books, each entitled "Lessons for Every Sunday in the Year," and the four embracing the whole Bible, were subsequently issued. March 14, 1863, Dr. Hart, LL.D., editor of the *Sunday School Times*, Philadelphia, wrote, "We have just been examining a little book, prepared by Orange Judd, New York, called '*Lessons for Every Sunday in the Year*,' and have risen from the examination with a feeling of *thankfulness* that such a book has been made. We have never seen a Question Book containing so many conveniences and advantages, as this, so many excellencies, both positive and negative. Mr. Judd is a life-long Sabbath School man, and this book is the fruit of the experience of himself and some of his friends, in trying to meet the practical wants of the Sabbath School. *Like all good text books, it has grown out of the actual necessities and experience; it is a growth rather than a work.* We advise every Superintendent to send at once for a copy."....After the general attention thus awakened, various new books sprung up on the same plan, and the original works have been somewhat overlooked, though they are still much used. What is said above shows that, like many other good enterprises, this "UNIFORM LESSON" movement originated in and through the *American Agriculturist*.

Value of Wood Ashes.—"Old Subscriber." Wood ashes made at lime-kilns and brick-yards are generally mixed with a quantity of rubbish, which reduces their value proportionately. As the fuel is burned with great heat, these ashes are less valuable than those burned at a lower temperature. Unleached ashes are worth considerably more than leached ashes, because the latter contain no readily soluble potash, in which the chief value of wood ashes consists. But leached ashes contain some potash, which becomes soluble in the soil after a lapse of time, and are thus of some value. They also contain some phosphoric acid. Generally leached ashes from the soap factories are worth one-fourth the value of unleached ashes; those from domestic leach-tubs are worth more than that, possibly in some cases, one half the value of unleached ashes. When ashes can not be procured for less than 25 cents a bushel, it will be more economical to buy the German potash salts, (Kianit.)

An Impure Well.—"W. M. F.," Northford, Ct. The fact that the water in a well changes its character, becomes impure for a time, and then improves, is sufficient evidence that organic matter finds its way into the well. A similar thing occurs when river water, containing impurities, is put into large casks for use upon ships on long voyages. For a few weeks this water undergoes a change, known amongst sailors as "sweetening," in which a very fetid odor is given off, the impurities, after the fermentation is over, are precipitated, and the water becomes sweet and pure, and remains so without further change. This alteration is probably due to the oxidation of the organic matter contained in the water. In your case, we should suspect a leak from a cesspool near by, or the admission of surface water without its having been purified by filtration through clean soil. There should be at least 30 feet between a well and any possible cause of impurity, such as a barn-yard, cesspool, or kitchen sink.

Scabby Legs in Poultry.—"H. W. B.," East Saginaw, Mich. The cause of scabby legs in poultry, is a parasitic insect, similar to the scab acarus of the sheep. The remedy is similar to that for scab. Wash the legs with a solution of potash, until the scabs are softened and peeled off, then dress them with an ointment of lard and sulphur, or wash them with carbolic soap suds.

Remedy for Quarter-Crack.—"W. C.," Schultzville, Pa. To cure a quarter crack, pare down the edges of the crack up to the sound horn above, if there is any, making a A shaped cut into the horn over the termination of the crack. Rasp the horn over the cut and keep the crack dressed with clean tow dipped in glycerine. The hoof should be bound up in a leather shoe tightly laced, to prevent the crack from spreading, or an India rubber shoe used. As the horn grows downward, the crack will grow down also, if care is used and all goes well. If there is no sound horn above the crack, but it reaches to the coronet, it is a very difficult thing to cure, and a surgeon had better be employed.

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The Dress Reform Corset-Waist and Skirt-Supporter.

(PATENTED April 6th, 1875.)

A long-felt want at last satisfied. A corset for those who can not wear corsets. Suitable alike for children, misses, young and elderly ladies. Says Dr. Sara E. Brown, a prominent lady physician in Boston, and one of the Dress Reform Committee: "I consider it the best compromise between a corset and waist I have ever seen, having the advantages of the former without its evils." Sent by mail on receipt of price: Children, $1.75; Misses and Ladies, $2.50. In stating size, give waist measure.

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In stating size, give { Satteen, Col. and White, $1.75. waist measure. { Eng. Jean, " " 2.50.

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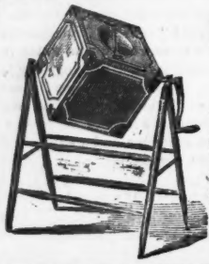

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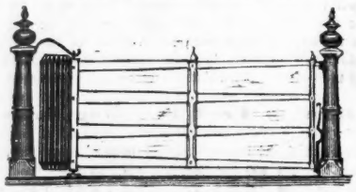

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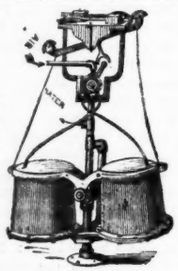

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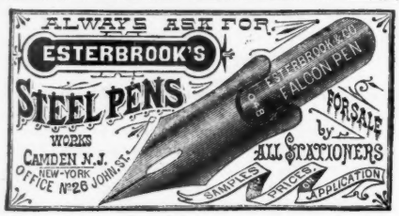

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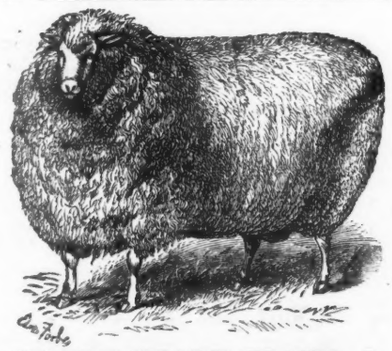

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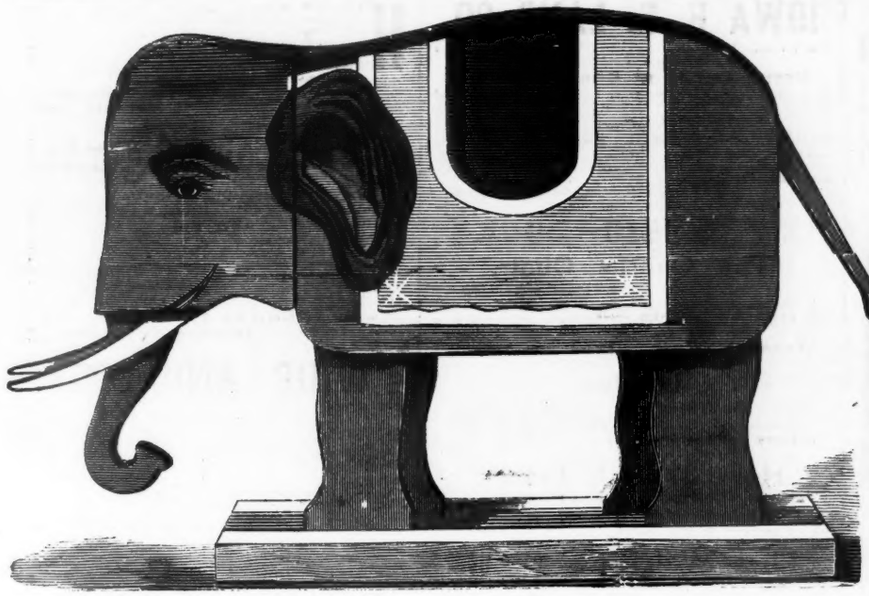

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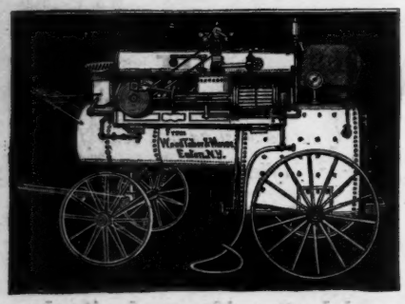

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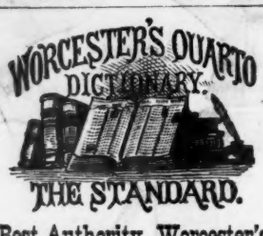

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